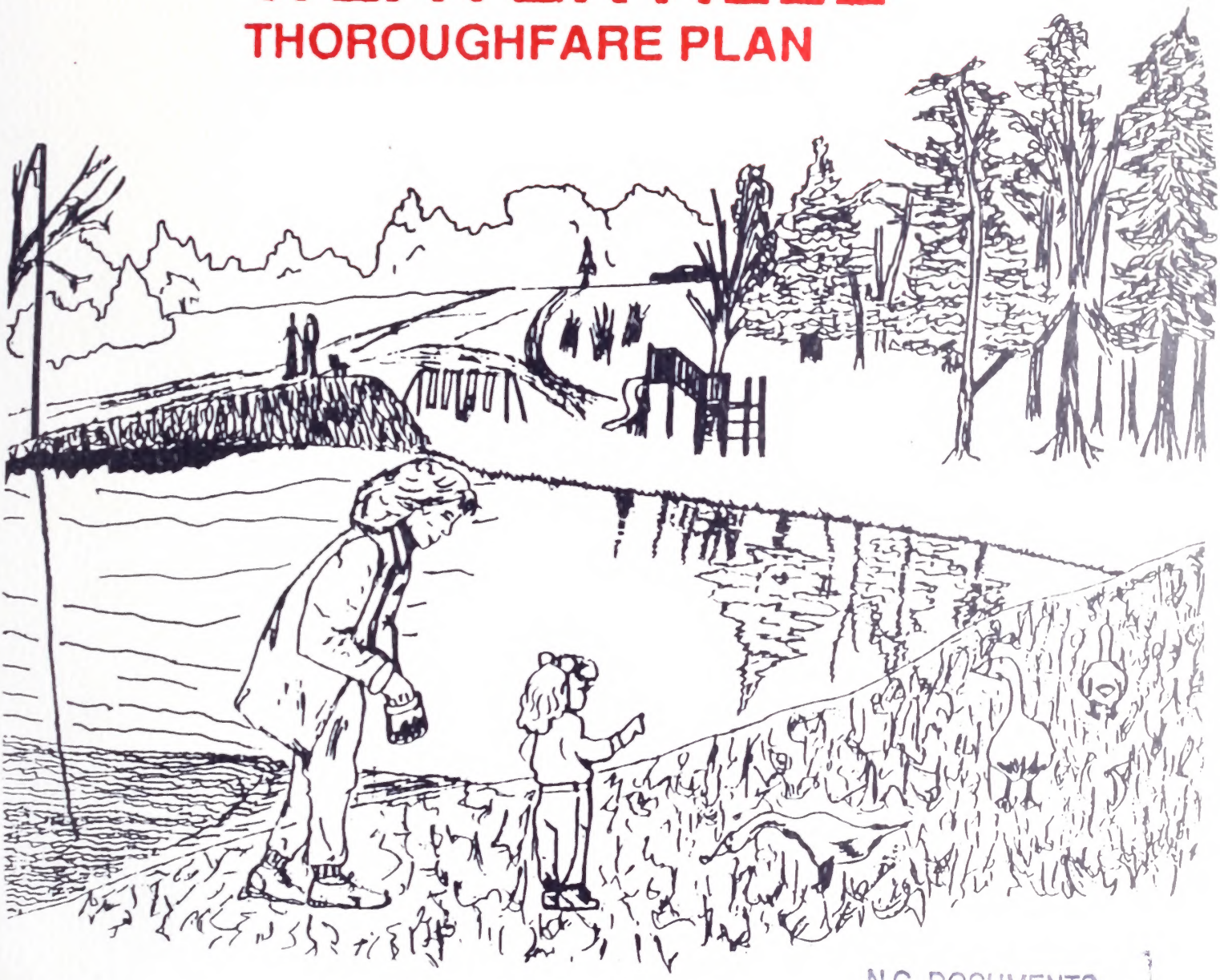
North Carolina Department of Transportation
Statewide Planning Branch

WEAVERVILLE
THOROUGHFARE PLAN



March 1992

Thoroughfare Plan

for the

Town of Weaverville, North Carolina

July 15, 1992

Prepared by the:

Thoroughfare Planning Unit
Statewide Planning Branch
Division of Highways
North Carolina Department of Transportation

In cooperation with the:

Town of Weaverville
Asheville Metropolitan Planning Organization
Federal Highway Administration
U.S. Department of Transportation

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

I. INTRODUCTION

Weaverville is a small community approximately 15 miles north of Asheville. Surrounded by the mountains of western North Carolina, Weaverville is quite picturesque. The town has enhanced its already attractive setting by beautifying Lake Louise. Located downtown, this lake and the surrounding park enjoy constant use by Weaverville's citizens. Weaverville still retains its small town atmosphere; however, the community is growing rapidly. More people are choosing to live in Weaverville due to its high quality of life and short commute to Asheville. US 19-23 Bypass and US 19-23 Business provide southerly access to Asheville. US 19-23 and US 25-70 provide access to Tennessee.

Weaverville became part of the Asheville Urban Area as a result of the 1980 U.S. Census. The Asheville Urban Area includes Asheville, Biltmore Forest, Black Mountain, Fletcher, Montreat, Weaverville, Woodfin, and urban portions of Buncombe County. Federal guidelines require that all urban areas with a population of over 50,000 people have a thoroughfare plan. Additionally, North Carolina General Statute 136-66.2 requires all municipalities to devise a major street plan in cooperation with the North Carolina Department of Transportation (NCDOT). As part of the urban area updating its existing thoroughfare plan, a new plan for Weaverville has been developed. This new plan will replace the existing 1984 Weaverville thoroughfare plan. Weaverville's thoroughfare plan was developed separately from the Asheville Thoroughfare Plan. The transportation system of the rest of the urban area (excluding Black Mountain and Montreat) operates as a unit and is being computer modeled. Since Weaverville operates somewhat independently of the rest of the urban area, the computer model would not accurately predict traffic volumes. The same situation occurs in Black Mountain and Montreat; therefore, the thoroughfare plans for Weaverville and these two towns have been developed separately from the rest of the urban area. Although separate, the plans are coordinated because the municipalities share some of the same roads and traffic.

The purpose of this report is to document the findings and recommendations of a thoroughfare study conducted by the North Carolina Department of Transportation. Included in this report are recommendations for thoroughfare cross sections, cost estimates for proposed improvements, an evaluation of the benefits to be gained from improvements, and recommendations for plan implementation. The planning period for this study extends to 2020. The study area includs the street system which was considered to operate as a part of Weaverville regardless of the existing town limits.

Thoroughfare planning provides many benefits, but the primary objective is to guide the development of the street

system in a manner that will adequately serve the future traffic demand. The thoroughfare plan is based on accepted thoroughfare planning principles.

It should be emphasized that the recommended plan is based on anticipated growth of the urban area as indicated by current trends. Prior to construction of specific projects, a more detailed study will be required to reconsider development trends and to determine specific locations design requirements, and more detailed environmental concerns.

II. THOROUGHFARE PLANNING PRINCIPLES

Objectives

Typically, the urban street system occupies 25 to 30 percent of the total developed land in an urban area. Since the system is permanent and expensive to build and maintain, much care and foresight is needed in its development. Thoroughfare planning is the process public officials use to assure the development of the most appropriate street system that will meet existing and future travel desires within the urban area.

The primary aim of a thoroughfare plan is to guide the development of the urban street system in a manner consistent with changing traffic demands. Through proper planning for street development, many costly errors and much needless expense can be averted. A thoroughfare plan will enable street improvements to be made as traffic demands increase, and help eliminate unnecessary improvements. By developing the urban street system to keep pace with increasing traffic demands, a maximum utilization of the system can be obtained that will require a minimum amount of land for street purposes. In addition to providing for traffic needs, the thoroughfare plan should embody those details of good urban planning necessary to present a pleasing and efficient urban community. The location of present and future population and commercial and industrial enterprises affects major street and highway location. Conversely, the location of major streets and highways within the urban area will influence the urban development pattern.

Other objectives of a thoroughfare plan include:

1. Providing for the orderly development of an adequate major street system as land development occurs;

2. Reducing travel and transportation costs;

3. Reducing the cost of major street improvements to the public through the coordination of the street system with private action;

4. Enabling private interest to plan their actions, improvements, and development with full knowledge of public intent;

5. Minimizing disruption and displacement of people and businesses through long range advance planning for major street improvements;

6. Reducing environmental impacts such as air pollution, resulting from transportation;

7. Increasing travel safety.

Thoroughfare planning objectives are achieved through both: (1) improving the operational efficiency of thoroughfares; and (2) improving the system efficiency through system coordination and layout.

Operational Efficiency

A street's operational efficiency is improved by increasing the capability of the street to carry vehicular traffic and people. In terms of vehicular traffic, a street's capacity is defined as the maximum number of vehicles which can safely and efficiently pass a given point of a roadway during a given time period under prevailing roadway and traffic conditions. Capacity is dependent upon several factors. Capacity is affected by the physical features of the roadway, nature of traffic, and weather. Under normal conditions, road width and alignment, the number of traffic signals and driveways, and the existence of parking influence capacity the most. When the capacity of a road is exceeded, congestion occurs. This leads to increased driving time, fuel consumption, air pollution, and traffic accidents. The thoroughfare plan recommends specific methods to avoid congestion and its byproducts.

Physical ways to improve vehicular capacity include street widening, intersection improvements, improving vertical and horizontal alignment, and eliminating roadside obstacles. For example, widening of a street from two to four travel lanes more than doubles the capacity of the street by providing additional maneuverability for traffic. Impedances to traffic flow caused by slow moving or turning vehicles and adverse effects of horizontal and vertical alignments are thus reduced.

Operational ways to improve street capacity include:

1. Control of access - A roadway with complete access control can often carry three times the traffic handled by a non-controlled access street with identical lane width and number.

2. Parking removal - Increases capacity by providing additional street width for traffic flow and reducing friction to flow caused by parking and unparking vehicles.

3. One-way operation - The capacity of a street can sometimes be increased 20-50%, depending upon turning movements and overall street width, by initiating one-way traffic operations. One-way streets can also improve traffic flow by decreasing potential traffic conflicts and simplifying traffic signal

coordination.

4. Reversible lanes - Reversible traffic lanes may be used to increase street capacity in situations where heavy directional flows occur during peak periods.

5. Signal phasing and coordination - Uncoordinated signals and poor signal phasing restrict traffic flow by creating excessive stop-and-go operation.

Altering travel demand is a third way to improve the efficiency of existing streets. Travel demand can be reduced in the following ways:

1. Encourage people to form carpools and vanpools for journeys to work and for other trip purposes. This reduces the number of vehicles on the roadway and raises the people carrying capability of the street system.

2. Encourage the use of the transit, bicycle, and pedestrian modes.

3. Encourage industries, business, and institutions to stagger work hours or establish variable work hours for employees. This will reduce travel demand in peak periods and spread peak travel over a longer time period.

4. Plan and encourage land use development or redevelopment in a more travel efficient manner.

System Efficiency

Another means for altering travel demand is the development of a more efficient system of streets that will better serve travel desires. A more efficient system can reduce travel distances, time, and cost. Improvements in system efficiency can be achieved through the concept of functional classification of streets and development of a coordinated major street system.

Functional Classification

Streets perform two primary functions -- traffic service and land service, which when combined, are basically incompatible. The conflict is not serious if both traffic and land service demands are low. However, when traffic volumes are high, conflicts created by uncontrolled and intensely used abutting property lead to intolerable traffic flow, friction, and congestion.

The underlying concept of the thoroughfare plan is that it provides a functional system of streets which permits

travel from origins to destinations with directness, ease, and safety. Different streets in the system are designed differently and are called on to perform specific functions, thus minimizing the traffic and land service conflict. Streets are categorized as to function as local access streets, minor thoroughfares, and major thoroughfares.

Local Access Streets provide access to abutting property. They are not intended to carry heavy volumes of traffic and should be located such that only traffic with origins and destinations on the streets would be served. Local streets may be further classified as either residential, commercial, and/or industrial depending upon the type of land use which they serve.

Minor Thoroughfares are more important streets in the system. They collect traffic from local access streets and carry it to the major thoroughfares. They may in some instances supplement the major thoroughfare system by facilitating minor through traffic movements. A third function which may be performed is that of providing access to abutting property. They should be designed to serve limited areas so that their development as major thoroughfares will be prevented.

Major Thoroughfares are the primary traffic arterials Their function is to move traffic within and between cities. The streets that comprise the major thoroughfare system also may serve abutting property; however, their principal function is to carry traffic. They should not be bordered by uncontrolled strip development because such development significantly lowers the capacity of the thoroughfare to carry traffic and each driveway is a danger and an hindrance to traffic flow. Similarly, parking is normally not permitted on major thoroughfares. Major thoroughfares may range from a two-lane street carrying minor traffic volumes to major expressways with four or more traffic lanes. Expressways and freeways are further characterized by controlled access and higher speed limits. Their sole purpose is to carry traffic.

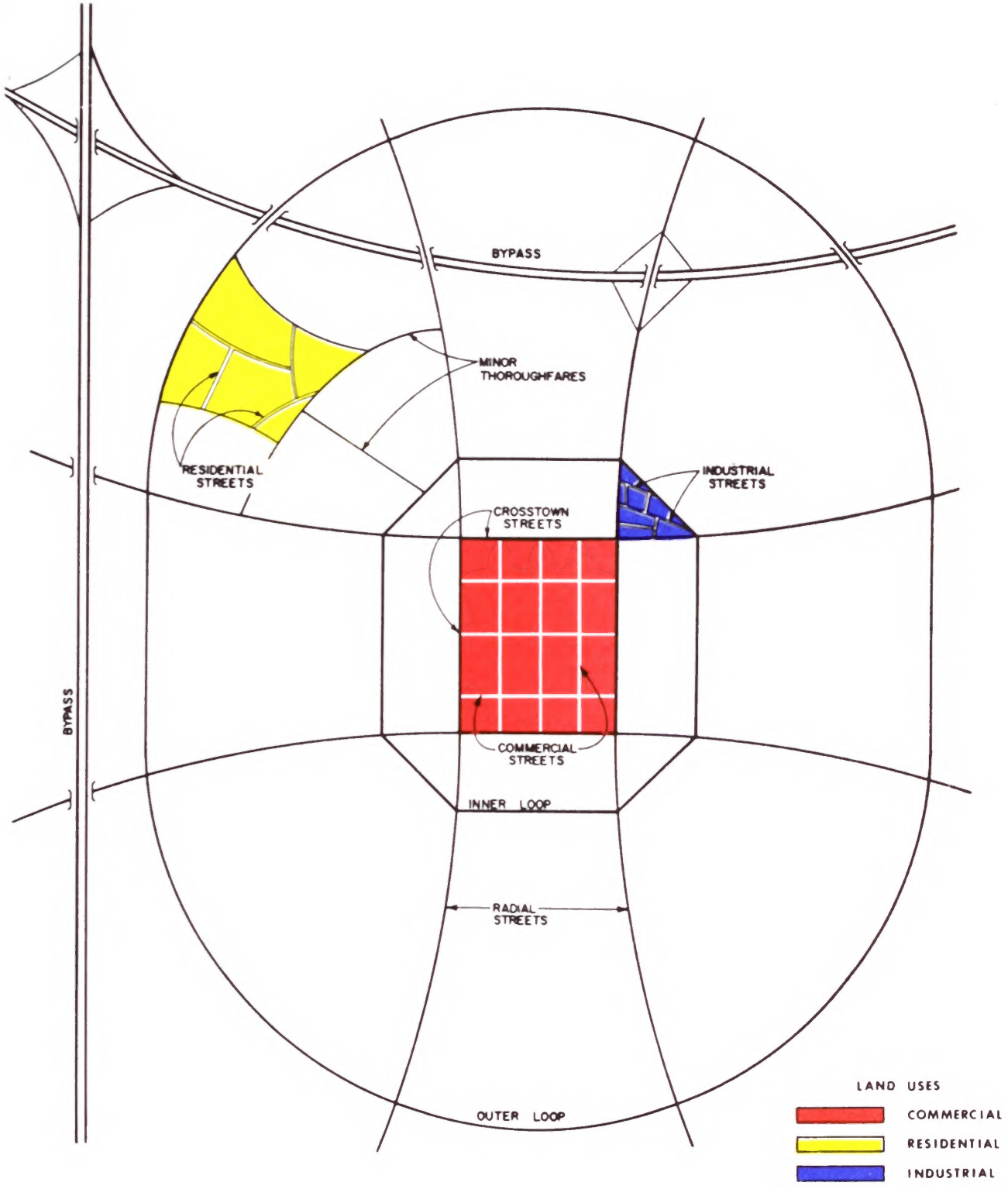
Idealized Major Thoroughfare System

A coordinated system of major thoroughfares forms the basic framework of the urban street system. The ideal thoroughfare system is the radial-loop system. Moreso than other major thoroughfare systems, it adapts to desired lines of travel within an urban area and permits movement between various areas of the city with maximum directness. This system consists of several functional elements -- radial streets, crosstown streets, loop system streets, and bypasses. Figure 1 illustrates this idealized system.

Radial streets provide for traffic movement between

FIGURE 1

IDEALIZED THOROUGHFARE PLAN



points located in the outskirts of the city and the central area. This is a major traffic movement in most cities, and the economic strength of the central business district depends upon the adequacy of this type of thoroughfare.

If all radial streets crossed in the central area, an intolerable congestion problem would result. To avoid this problem, it is very important to have a system of crosstown streets that form a loop around the central business district. This system allows traffic originating on one side of the central area and destined for the other to travel along the area's border. It also allows central area traffic to circle and then enter near a chosen destination. A good crosstown system frees the central area of crosstown traffic, thus permitting the central area to function more adequately in its role as a business area or pedestrian shopping area.

Loop system streets move traffic between suburban areas of the city. Although a loop may completely encircle the city, a typical trip may be from an origin near a radial thoroughfare to a destination near another radial thoroughfare. Loop streets themselves do not necessarily carry heavy volumes of traffic; they help relieve central areas. There may be one or more loops, depending on the size of the urban area, and they are generally spaced one-half mile to one mile apart, depending on the intensity of land use.

A bypass is designed to carry traffic through or around the urban area, thus providing relief to the city street system by removing traffic which has no desire to be in the city. Bypasses are usually designed to through highway standards, with control of access. On occasions, a bypass with a low traffic volume can be designed to function as a portion of an urban loop. The general effect of bypasses is to expedite the movement of through traffic and to improve traffic conditions within the city. By freeing the local streets for use by shopping and home-to-work traffic, bypasses tend to increase the economic vitality of the local area.

Application of Thoroughfare Planning Principles

The concepts presented in the discussion of operational efficiency, system efficiency, idealized major thoroughfare system, and functional classification are conceptual tools available to the transportation planner in developing a thoroughfare plan. In actual practice, thoroughfare planning is done for established urban areas and is constrained by existing land use and street patterns, existing public attitudes and goals, environmental and social impacts of proposed improvements, and current expectations of future land use. Compromises must be made because of these and the many other factors that affect major street locations.

III. EXISTING AND PROJECTED CONDITIONS

Major Routes

Weaverville is served primarily by US 19-23 Bypass and Business which run north-south through the town. US 19-23 South provides access to Asheville while US 19-23 North leads to Tennessee. US 19-23 Business follows Merrimon Avenue and Main Street through the central business district of Weaverville. Parallel parking lines the Main Street portion of this route. I-26 which currently terminates in Asheville will be rerouted onto US 19-23. Construction will begin in 1993. When complete, I-26 will link Charleston and Cleveland. US 25-70 is routed with US 19-23 from Asheville until it reaches the Weaver Boulevard interchange where it heads northwest to Tennessee and is no longer controlled access. Reems Creek Road and Weaver Boulevard are the east-west major thoroughfares. Weaver Boulevard is currently a two lane facility. Widening Weaver Boulevard to five lanes is listed as the urban area's third priority in the Urban Systems category on the 1992 Priority Needs List. Widening to three lanes is scheduled for 1992. Hamburg Mountain Road, also a major thoroughfare, carries traffic from the development east of town to the shopping centers on Weaver Boulevard. Most of Weaverville's streets are residential or rural in character.

Population

Population strongly influences the amount and type of traffic which a street system will experience and, therefore, is a major factor in the determination of the transportation needs of an area. Examination of population and other contributing factors helps to establish and explain historic traffic patterns and is the basis for the development of a thoroughfare plan.

According to 1990 census figures, 2110 people live in Weaverville. Since 1970, the population of Weaverville has been growing at a rate of approximately 2.5% per year. Two to four percent population growth is considered average for most North Carolina municipalities. The Reems Creek township is growing at about 2.1% per year. Both the town and township are growing faster than Buncombe County. The county is growing approximately 1% per year. Each of these percentages is a compounded yearly growth rate.

The following table lists population figures obtained from the Bureau of Census. Projections made by the Office of State Budget and Management were used for the Buncombe County figures for years 2000 and 2010. Other future populations were estimated by applying the compounded annual growth rate for the period 1970-1990 to the 1990 population and then successively to each previous year. In the case of the 2020

Buncombe County estimate, the growth rate was simply applied to the 2010 projection made by the Office of State Budget and Management since its figures seemed to best reflect the ratio of Weaverville's population to the county population. All figures were rounded to the nearest 500.

TABLE 1. POPULATION GROWTH

YEAR	WEAVERVILLE	REEMS CREEK TOWNSHIP	BUNCOMBE COUNTY
1980	1,500	8,500	161,000
1990	2,000	9,500	175,000
2000	2,500′	11,500′	188,000*
2010	3,500′	14,500′	197,500*
2020	4,500′	18,000′	216,000′

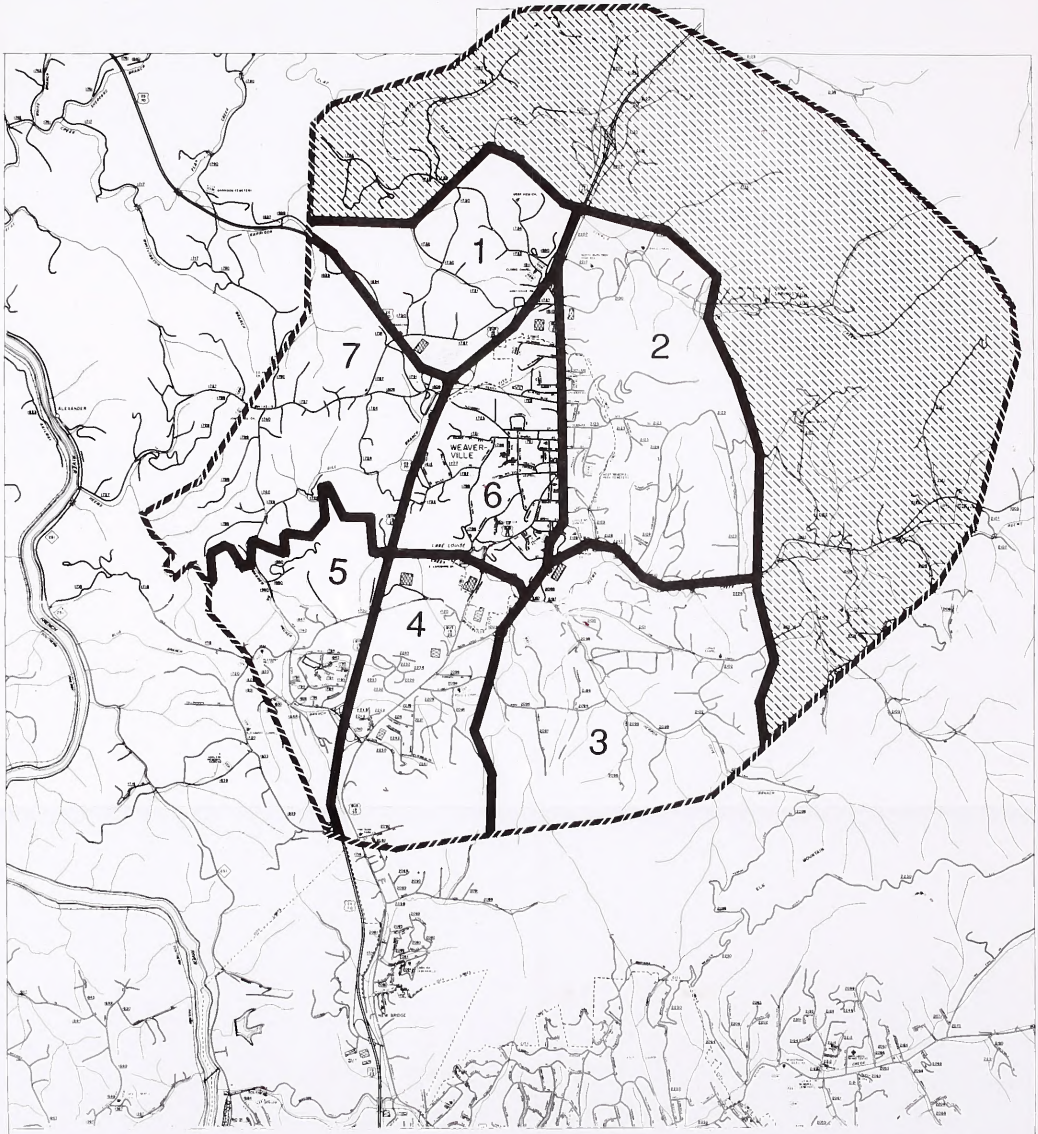
′ based on compounded annual growth rate
* Office of State Budget and Management projections

Land Use

The generation of traffic on a particular street is closely related to the manner in which adjacent land is used. Some types of land generate more traffic than others and the attraction between different land uses varies with the intensity and spacial separation of the uses. Therefore, in transportation planning, it becomes necessary to designate land uses by type so that an analysis of the distribution of existing land uses can serve as a basis for forecasting future land use needs and the resulting travel patterns.

Identifying existing land use was accomplished via field surveys of Weaverville and the collection of socio-economic data. In the summer of 1989, an intensive field survey was conducted in Weaverville to collect socio-economic data. This data, in part, consists of the location of homes and businesses, business type and size, and the dates businesses were established. The homes and businesses were located by zones as indicated in Figure 2. Appendix E catalogs some of the data collected.

To project future land use, discussions were held with Weaverville's town manager, land use planners, and other officials to determine where water lines would be extended, annexations would occur, and new residential, institutional, commercial, and industrial developments were planned or being encouraged. In addition, the Town's land-use plan was developed concurrently with the thoroughfare plan, allowing coordination of the two plans. This information indicated where future growth can be expected. Figure 3 shows expected future land use.



PLANNING AREA AND ZONES

WEAVERVILLE
BUNCOMBE COUNTY
NORTH CAROLINA

PREPARED BY THE
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS-PLANNING AND ENVIRONMENTAL BRANCH
IN COOPERATION WITH
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

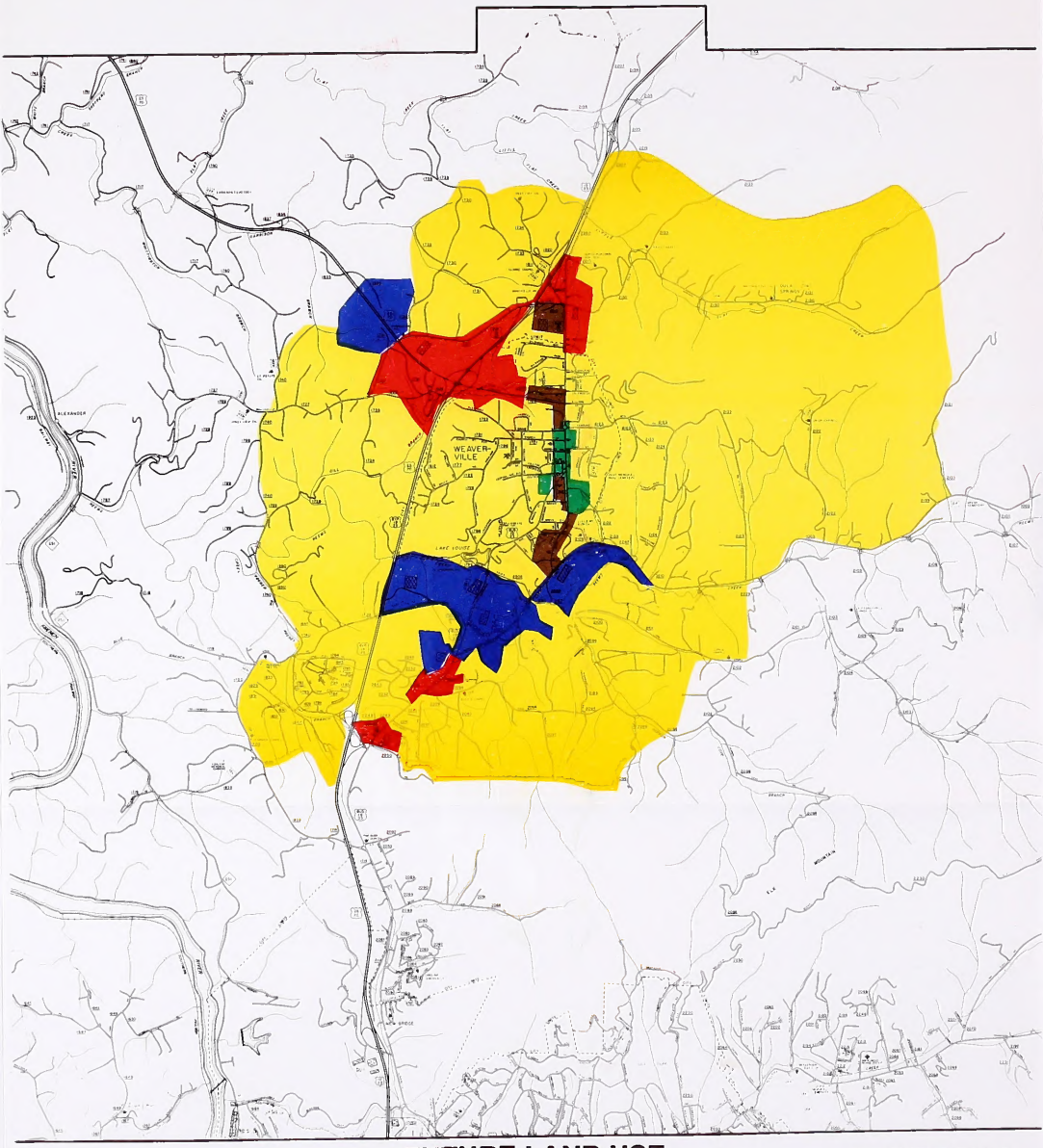
LEGEND

PLANNING AREA BOUNDARY

1-7 ZONES

NOT ZONED

FIGURE 2



FUTURE LAND USE

(ADOPTED FROM TOWN LAND USE PLAN)

WEAVERVILLE
BUNCOMBE COUNTY
NORTH CAROLINA

LEGEND

- RESIDENTIAL
- OFFICE INSTITUTIONAL
- CENTRAL BUSINESS
- COMMERCIAL
- INDUSTRIAL

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FEDERAL HIGHWAY ADMINISTRATION

SCALE
0 2000

FIGURE 3

Weaverville is predominantly residential. The majority of the homes are single-family residences located in the center of town or to the south or west of town. New neighborhoods, some including multi-family dwellings, are either expected or being built near Pink Fox Road, New Stock Road, Clarks Chapel Road, Mountain Road, and Dogwood Road. The two largest neighborhoods presently under construction, one off of Mountain Road and the Reems Creek Golf Course development on Pink Fox Road, will contain 150 and 180 homes, respectively, upon completion. Weaverville's Town Land Use Plan is encouraging new residential development on Banks Town Road, near the Dula Springs Road/Main Street intersection, and on the west side of town. New development could potentially occur in the vicinity of Salem Road also.

Most of the major commercial development is on Main Street and Weaver Boulevard with some on Merrimon Avenue and Monticello Road. Small businesses line Main Street, making this area the central business district. Institutional and public buildings also front the street. Historically, Main Street has been the chief commercial district; however, the land along Weaver Boulevard is quickly developing as the town's prime commercial area. Currently, two shopping centers, one gas station, and three fast food restaurants front this road. A bank and hotel will be locating there in the near future. Businesses including a fast food restaurant and grocery store are located on Merrimon Avenue, most congregating near its junction with Main Street and at the New Stock Road interchange. A new shopping center is being planned for the vicinity of this interchange. Some small commercial development also exists on Monticello Road. More land could potentially open up for further commercial business if the interchange at Monticello Road is consolidated.

Reems Creek Road and Merrimon Avenue are home to most of the major industry in town. Major industries within Weaverville are: Champion Finishing Company, Sonopress, Swissartex Emblem Company, Ballcrank Products, Conrad Industries, Mount Vernon Mills, Reliance Electric Inducting Company, and Revco Scientific Incorporated. These industries and the Buncombe County School System are the largest employers in the area; however, new industry may locate north of town near the Flat Creek interchange. Weaverville's Town Land Use Plan supports this effort.

The primary recreational area in Weaverville is Lake Louise. This park rests in the center of town off of Merrimon Avenue and enjoys constant use by citizens, young and old. Previously swampy, the lake was destined for further fill as part of a 1985 Weaverville thoroughfare plan recommendation to improve Highland Drive. The lake was given new life in the late 1980s when the town utilized Land and Water Conservation Funds (LWCF) to beautify it. The use of

these funds further qualified the park as a 4(f) property, the implications of which are discussed in the Recommendations section of this report. In addition to Lake Louise, the town owns eight acres of parkland between Main Street and Spruce Street. As part of a new residential development, a golf course has been built off of Pink Fox Road. The Reems Creek Golf Course draws golfers from outside of Weaverville. Also, the mountains surrounding Weaverville offer tremendous recreational opportunities for both the citizens and tourists. The Blue Ridge Parkway and President Vance birthplace are near Weaverville. Large numbers of tourists visit the area, primarily during July.

Traffic Trends

To project future traffic volumes and patterns, existing and historical traffic volumes and patterns must first be studied. Travel demand is generally reported in the form of average daily traffic counts. Traffic counts are taken regularly at several locations in and around Weaverville by NCDOT. Figure 4 shows existing and projected future traffic volumes. Unlike larger urban areas such as Asheville, the travel demand for smaller towns is not computer modeled since the model does not accurately represent smaller areas; however, the travel patterns between shopping, schools, housing, and employment are much easier to discern in the smaller areas. Thus, experience has shown that it is more desirable to base travel demand on past traffic trends and expected future development.

To estimate future travel demand in Weaverville, traffic trends over the past fifteen to twenty years were studied. The construction of US 19-23 Bypass in 1973 created the most significant impact on local traffic patterns. It removed north-south through traffic from Main Street and SR 2207 (Old US 19-23) and provided an alternate route for citizens commuting to Asheville. Since the bypass altered traffic to such a degree, most roads in this study were analyzed for the period after the bypass was built.

On the larger roads, where frequent traffic counts have been taken and steady growth has occurred, the MINITAB statistical analysis package was used to predict future traffic volumes. Given a series of traffic volumes and corresponding years, MINITAB uses least squares linear regression to derive an equation of the following form:

$$VOLUME = A + (B * YEAR)$$

where VOLUME = TRAFFIC VOLUME IN A GIVEN FUTURE YEAR

A = CONSTANT
= average volume - (B * average year)

B = COEFFICIENT OF INDEPENDENT VARIABLE "YEAR"

$$= \frac{(\text{year} - \text{ave. vol.})(\text{vol.} - \text{ave. vol.})}{(\text{year} - \text{ave. year})^2}$$

YEAR = ANY FUTURE YEAR A.D. (e.g. 2020)

MINITAB also calculates an R^2 value which indicates the accuracy of the equation. In addition to this method, a percent growth per year was calculated to aid further in the prediction of future traffic. Where necessary, adjustments were made to account for unusually high growth rates caused by now complete development. As with any mathematical solution to a non-mathematical situation such as future developmemt, adjustments to these calculations were made to reflect expected future development.

For the smaller roads where less data was available or where growth was nominal, the R^2 correlation was too low to use this method. For these roads, the percent growth per year was calculated and then adjusted to account for any biases caused by past development or to reflect plans for new development.

On an average, traffic growth in Weaverville has ranged from two to five percent with spurts on individual roads as development occurred. As in the past, traffic volumes will continue to grow in Weaverville. Additional through traffic can be expected on the US 19-23 Bypass once I-26 is routed with US 19-23. This is scheduled to occur after US 19-23 is upgraded to interstate standards between 1993 and 1998. Without the additional traffic from I-26, US 19-23 would still require additional lanes due to increasing traffic demands. Unless improvements are made, Main Street, Merrimon Avenue, Weaver Boulevard, and Reems Creek Road also will experience congestion as the capacity of these roads is exceeded by number of vehicles traveling them. Traffic volumes on Main Street demand the most attention as they will exceed the capacity of this facility as soon as 1995. In part due to the physical restraints caused by the businesses along this street, alleviating this congestion will necessitate improving not only the operational efficiency of Main Street but also the system efficiency of the surrounding network of roads.

Traffic Accidents

Since reducing the risks of traffic accidents is a major goal in any thoroughfare plan, accident reports for the Weaverville Area were studied. Initially reports for the three year period between 1985 and 1988 were reviewed. Later 1988-1991 figures were studied. Accident locations include the US 19-23/Monticello Road interchange and the New Stock Road interchange and their vicinities. Partially due to the

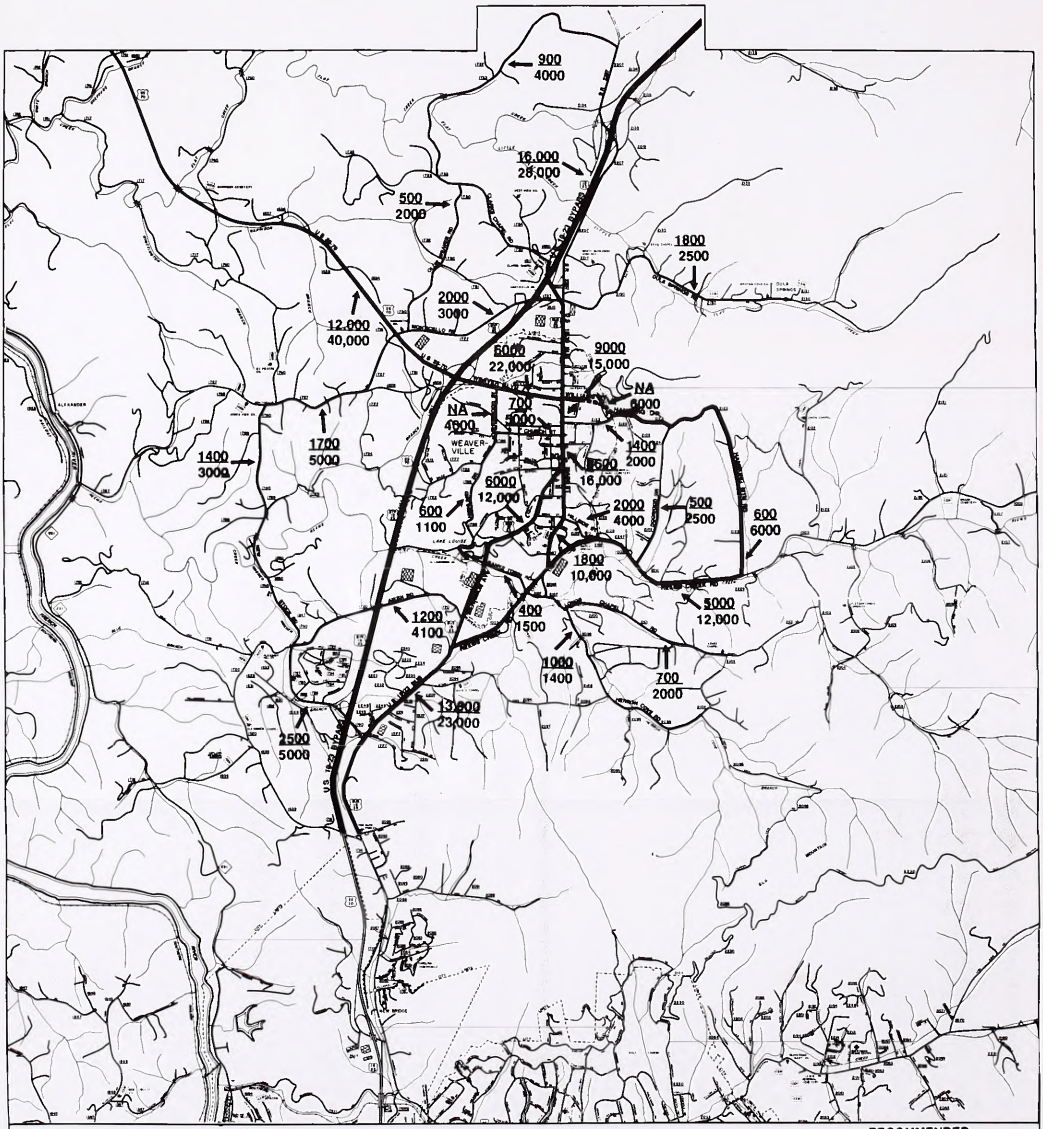
close proximity of US 19-23 Bypass and Business and the space restraints thus imposed, each of these interchanges are confusing, apparently to local residents as well as out-of-town drivers. Thirty-six accidents, the highest number of accidents in Weaverville, occurred at the junction of New Stock Road with US 19-23 and US 19-23 Business between 1985 and 1988. This figure was repeated during the period of 1988 to 1991. The Monticello Road interchange is confusing because it is split into two partial interchanges located approximately 0.2 miles apart. Improvements are recommended for both interchanges. Although a high number of accidents are not recorded for the intersection of Main Street and Reems Creek Road, this intersection is dangerous and also needs to be improved. Main Street slopes downward before tying into Reems Creek Road at an angle just below a crest in the vertical alignment of Reems Creek Road. Accidents have occurred here; however, many have been averted since many drivers avoid this intersection by bypassing it via Hillside Street, a steep and poorly aligned residential street. Re-aligning this T-intersection will decrease its accident potential as well as remove traffic from Hillside Street.

Additional Information

In addition to population, land use, traffic trends and accidents, a variety of other information was integrated into the analysis of Weaverville's street system. The additional information included:

- Physical data concerning streets - road widths, speed limits
- Areas of historical, archaeological, cultural, and public interest
- Environmental resources/concerns - wetlands, scenic rivers, endangered species, hazardous wastes
- Topography

These areas are discussed in more detail as they pertain to the recommendations. Also, meetings with local officials, planners, and residents were held to discuss the Town's concerns and goals as related to traffic and land use. These discussions proved integral to the analysis.



HISTORICAL AND PROJECTED TRAFFIC VOLUMES

00000 1989 TRAFFIC VOLUMES
00000 2020 TRAFFIC VOLUMES

FIGURE 4

RECOMMENDED
WEAVERVILLE
BUNCOMBE COUNTY
NORTH CAROLINA
THOROUGHFARE PLAN

PREPARED BY THE
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS-STATEWIDE PLANNING BRANCH
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FEDERAL HIGHWAY ADMINISTRATION

SCALE IN FEET

IV. RECOMMENDATIONS

Weaverville's street system was classified into three categories: freeways, major thoroughfares, and minor thoroughfares. Figure 5 locates these thoroughfares. Roads which were not classified in one of these categories but which are part of Weaverville's street system are considered local access streets. Traffic volumes, adjoining land use, type of traffic, origin and destination of traffic, and physical characteristics of the street were considered when classifying the streets. A list identifying these streets by their functional classification follows. Where deficiencies exist or are predicted to exist, specific roadway improvements are also recommended. More detail on the physical and operational characteristics of each road is given in Appendix A. Figure 5 and Appendix A refer to the recommended plan while Figure 6 shows the mutually adopted plan.

These recommendations cannot be considered all-inclusive since unforeseen future traffic conditions may necessitate other improvements in order to insure safe and efficient operation of the street system. Routine maintenance is also expected. It should be emphasized that the recommended plan is based on anticipated growth as indicated by current trends. Prior to construction of specific projects, a more detailed study will be required to reconsider development trends and to determine specific locations and design requirements. Also, should development occur differently from what has been projected, the Town can request that the thoroughfare plan be revised to reflect those changes.

FREEWAYS

1. US 19-23 BYPASS/US 25-70 - The bypass is a 4-lane divided controlled access facility which runs north-south through Weaverville. Near 2020, the bypass will need to be widened to 6 lanes from SR 1839 to Weaver Boulevard/US 25-70 due to projected traffic volumes exceeding the capacity of the freeway. It is expected that this widening will continue south through Woodfin and Asheville.

   Once US 19-23 is designated as I-26, some additional through traffic is expected to utilize this route. An Environmental Impact Statement (EIS) is being prepared for the northern portion of US 19-23 in Madison County by a consultant. The future traffic volumes estimated in the consultant's study were coordinated with the thoroughfare plan's projected volumes on US 19-23 near Weaverville. The section of US 19-23 in the planning area will undergo improvements which will bring it to interstate standards. This construction is scheduled in the 1992-1998 Transportation Improvement Program (TIP)

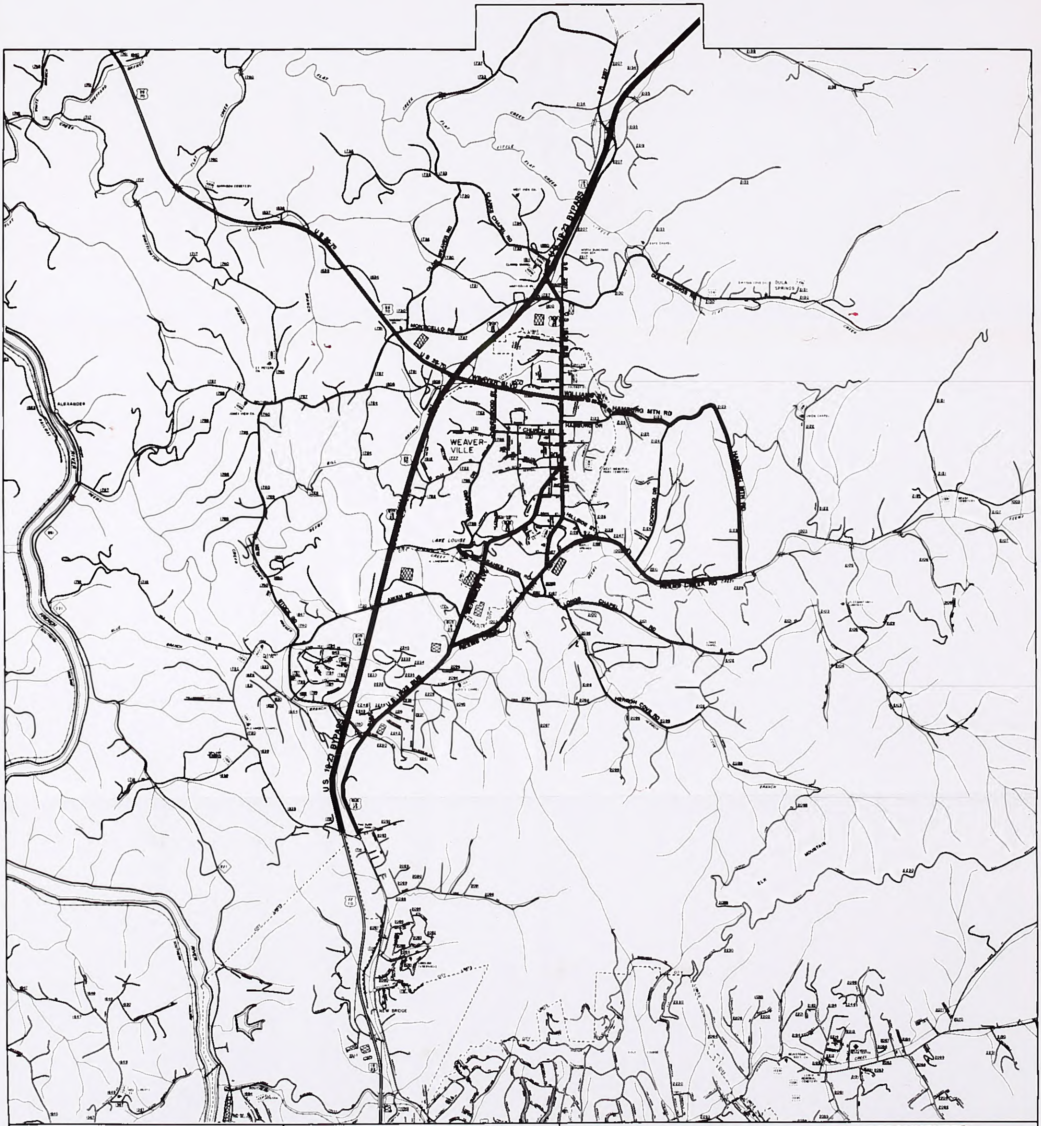
to begin in 1993.

As part of the recommended widening or possibly as part of upgrading US 19-23 to interstate standards, the New Stock Road and Monticello Road interchanges need improvements. The NEW STOCK ROAD INTERCHANGE needs to be improved in order to decrease driver confusion and to better accommodate further space restraints caused by the widening of US 19-23 Bypass and Business. Between 1985-1991, approximately 12 accidents a year occurred in its immediate vicinity. The MONTICELLO ROAD INTERCHANGE should also be improved in order to reduce driver confusion. This could be accomplished by consolidating the interchange and eliminating the 5-point intersection.

MAJOR THOROUGHFARES

1. REEMS CREEK ROAD (SR 1003) - is a two lane major thoroughfare which runs west from the eastern edge of the planning area to US 19-23 Business/Merrimon Avenue. It primarily serves residential and industrial based traffic although it does lead to Reems Creek Golf Course and President Vance's birthplace. Near year 2020, it is recommended that Reems Creek Road be widened to 4 lanes from US 19-23 Business/Merrimon Avenue to Hamburg Mountain Road due to projected traffic volumes exceeding the capacity of the road. Four lanes will actually be more than adequate to handle the projected traffic volumes; however, simply widening Reems Creek Road from its current 20 feet to 24 feet or to three lanes rather than the recommended four will not increase its capacity sufficiently to accommodate expected traffic growth. Adding a third lane, a turning lane, increases capacity by allowing cars to wait to make a turn without blocking through lanes. Normally, turn lanes are needed on commercial strips where numerous driveways exist. Since this type of development does not exist on Reems Creek Road, a turn lane would not alleviate the projected congestion. For these reasons, four lanes are recommended.

   In addition to the widening, the MAIN STREET/REEMS CREEK ROAD INTERSECTION needs to be realigned since it poses a safety hazard. Although a high number of accidents are not recorded at this site, the intersection is dangerous due to its poor sight distance and alignment. Main Street slopes downward before tying into Reems Creek Road at an angle just below a crest on Reems Creek Road. Accidents have occurred here; however, many have been averted due to drivers avoiding the intersection. They bypass this intersection using Hillside Street, a steep and poorly aligned residential road. Realigning this intersection will decrease its accident potential



LEGEND

	EXISTING	PROPOSED
FREEWAYS		
MAJOR THOROUGHFARES		
MINOR THOROUGHFARES		

ADOPTED BY:

TOWN OF WEAVERVILLE ____________

STATEWIDE PLANNING BRANCH ____________

N. C. DEPARTMENT OF TRANSPORTATION ____________

PUBLIC HEARING DATE ____________

REVISIONS

TOWN OF WEAVERVILLE	STATEWIDE PLANNING BRANCH	N. C. DEPARTMENT OF TRANSPORTATION

N

S

RECOMMENDED WEAVERVILLE

BUNCOMBE COUNTY NORTH CAROLINA THOROUGHFARE PLAN

PREPARED BY THE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS-STATEWIDE PLANNING BRANCH

IN COOPERATION WITH

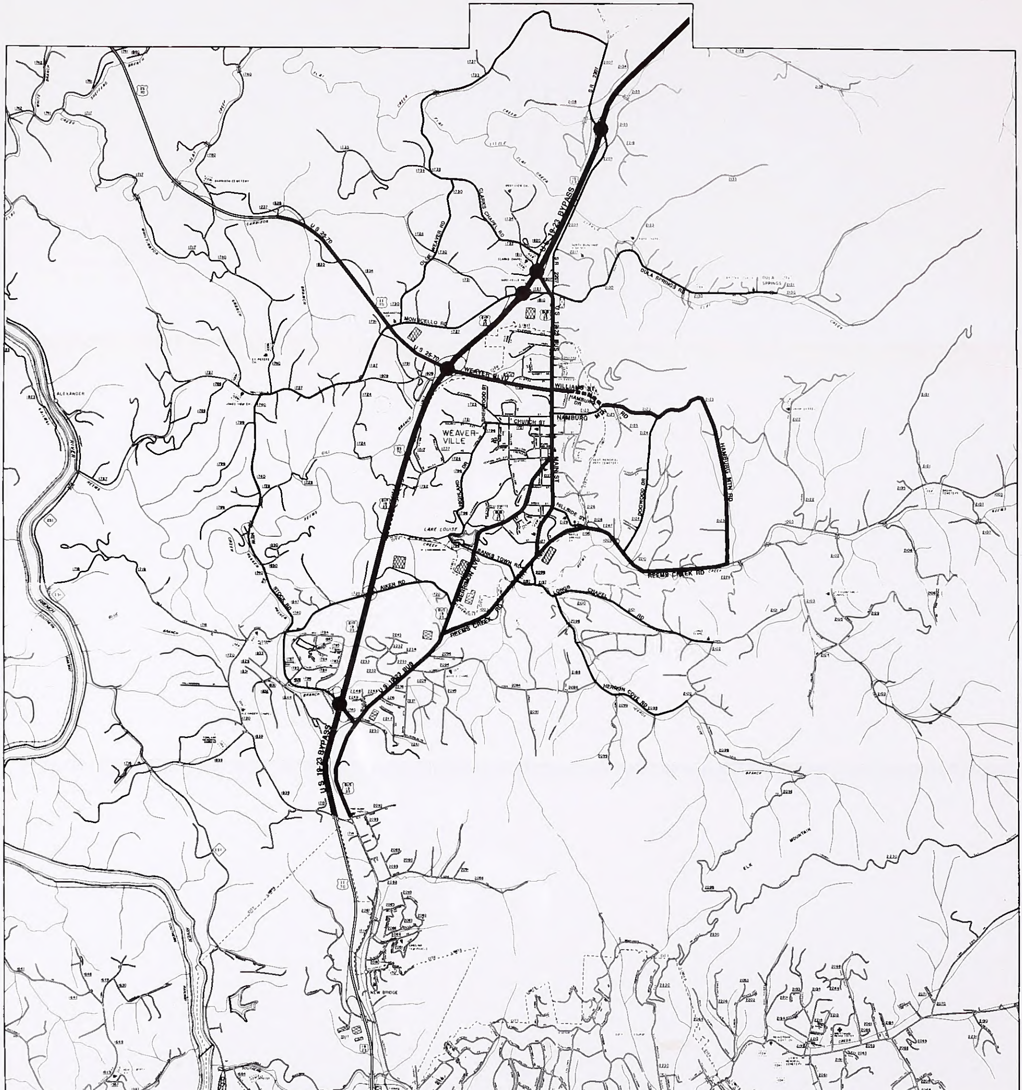
U.S. DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

0 1000 2000 3000 4000

SCALE IN FEET

FIGURE 5



LEGEND	EXISTING	PROPOSED
FREEWAYS		
MAJOR THOROUGHFARES		
MINOR THOROUGHFARES		
INTERCHANGE		
GRADE SEPERATION		

ADOPTED BY:

TOWN OF WEAVERVILLE	FEBRUARY 17, 1992
STATEWIDE PLANNING BRANCH	FEBRUARY 18, 1992
N. C. DEPARTMENT OF TRANSPORTATION	MARCH 6, 1992
PUBLIC HEARING DATE	APRIL 9, 1991 JULY 9, 1991

REVISIONS

TOWN OF WEAVERVILLE	STATEWIDE PLANNING BRANCH	N.C. DEPARTMENT OF TRANSPORTATION
[illegible]	[illegible]	[illegible]

FIGURE 6

N
S

WEAVERVILLE
BUNCOMBE COUNTY
NORTH CAROLINA
THOROUGHFARE PLAN

PREPARED BY THE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS-STATEWIDE PLANNING BRANCH

IN COOPERATION WITH

U.S. DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

0 1000 2000 3000 4000

SCALE IN FEET

APRIL 9, 1991

as well remove traffic from Hillside Street. In addition to realigning Main Street, perhaps the crest on Reems Creek Road could be cut down in order to further improve sight distance.

2. WEAVER BOULEVARD (SR 1725) - Weaver Boulevard is a two lane arterial which links US 19-23 Bypass and US 19-23 Business (Main Street). West of the interchange, Weaver Boulevard becomes US 25-70. Since the adjacent land is rapidly developing for commercial use and many driveways already tie into the street, it is recommended that Weaver Boulevard be widened to 3 lanes immediately where commercial development currently exists. The turn lane created by this widening will increase the capacity of Weaver Boulevard as well as make it safer. Later in the planning period, this facility will need further widening to 5 lanes in order to accommodate anticipated new development with its accompanying traffic. Since this area is growing rapidly, it is further recommended the Town monitor Weaver Boulevard as development occurs and require sufficient setbacks to accommodate an ultimate five lane section.

   The WEAVER BOULEVARD/MAIN STREET INTERSECTION should be redesigned in conjunction with improvements to Main Street and Williams Street. Accidents have occurred here and is not properly aligned with Williams Street.

3. MERRIMON AVENUE/US 19-23 BUSINESS - Merrimon Avenue is a two lane radial which carries traffic from south of town to the central business district and vice versa. Residential, commercial, industrial, and recreational properties abut this road. Of special interest are Lake Louise and the nearby Dry Ridge Inn, a potential National Historic Register candidate. Projected traffic volumes indicate capacity problems for Merrimon Avenue. In order to avoid this congestion, improvements are recommended for different sections of this street:

   A. FROM OLD HOME ROAD (SR 2092) APPROXIMATELY TO CHAMPION PLANT - Widen to 5 lanes approximately midway through the planning period when road is near capacity.

   B. FROM BROWN STREET TO MAIN STREET - Widen to 5 lanes near the end of the planning period when road is approaching capacity. Part of this widening would provide turn lanes at Main Street.

   C. FROM NEAR CHAMPION PLANT TO BROWN STREET - Widen to 4 lanes near the end of the planning period. No turn lane is recommended here due to the topography (Lake Louise and rock banks) and adjacent land use (park and residential).

There is insufficient width for 4 lanes between Lake Louise and the high rock embankment to its east. In order to widen this section, NCDOT would either fill in a portion of the lake or remove the rock embankment. Not only is Lake Louise considered a tremendous asset to the community, it is designated 4(f). By federal regulation, this classification protects public parks from disturbance unless there is no "feasible and prudent" alternative. Removing the rock embankment can be done fairly easily and very safely. This option could be somewhat more expensive due to necessary right-of-way acquisition. (A home sits on top of the embankment.) At this time, removing the embankment is recommended; however, further study will occur during the project planning phase before a final decision is made.

4. MAIN STREET (SR 2127) - Main Street runs the length of downtown Weaverville from north to south. In addition to residential and commercial property, the post office, Town Hall, public library, an elementary school, and several churches front Main Street. Most of the citizens who live in central, east, and south Weaverville use some portion of Main Street to access Weaver Boulevard's shopping centers. Excluding US 19-23 Bypass and Merrimon Avenue between Reems Creek Road and the New Stock Road interchange, Main Street carries the heaviest traffic in Weaverville. Currently, it hosts three signals between Merrimon Avenue and Monticello Road. Parallel parking lines most of Main Street from Hamburg Mountain Road to Brown Street on the east side of the street. Parking extends to Yost Street on the west side. While providing a service to the businesses and institutions, the parking significantly decreases the capacity of the road.

   Although capacity problems do not currently exist, Main Street is swiftly approaching its limit in its ability to carry vehicles safely and efficiently. Near 1995, the pavement from Weaver Boulevard to Central Avenue should be restriped such that a center turn lane is created. This will require the removal of on-street parking. Where space allows, consideration will be given to retaining parking on one side of the street. Several areas off of Main Street may be available for parking. The Town or businesses may wish to acquire these properties as parking is removed from Main Street.

   Main Street actually needs to be widened further to accommodate projected traffic growth; however, due to the many businesses along this road and its importance as the central business district, more widening is not recommended. Other streets must take over the extra

traffic which Main Street cannot handle. These streets should be upgraded to encourage their use as an alternative to Main Street.

Specifically, one of these alternates is routing traffic from the southeast along an upgraded Williams Street-Hamburg Drive facility. Currently, traffic from this area travels along Hamburg Mountain Road to Main Street to access Weaver Boulevard. This movement creates, in effect, an offset intersection. Upgrading Williams Street and part of Hamburg Drive will help relieve congestion on the most heavily travelled section of Main Street between Hamburg Mountain Road and Weaver Boulevard. Upgrading the Main Street/Weaver Boulevard-Williams Street intersection is recommended in conjunction with the widening.

The extension of Highland Drive through Sherwood Street to Weaver Boulevard would also help relieve the congestion on Main Street. Although not adopted by the Town, this alternate is discussed in more detail later in this report.

No improvements beyond normal maintenance are recommended for the sections of Main Street north of Weaver Boulevard and south of Central Avenue since no capacity problems are anticipated here.

5. WILLIAMS STREET - Williams Street currently serves as a local access road for the residences along it and the few homes on the portion of Hamburg Drive which acts as an extension of Williams Street. A large residential development being built on Hamburg Mountain also feeds into Williams Street, its sole exit off of the mountain. As part of the alternate to Main Street discussed above and, additionally, due to its sub-standard width and role as the only exit off of Hamburg Mountain, Williams Street should be widened to 24 feet. It may need to be slightly realigned as part of the upgrading of its intersection with Main Street and Weaver Boulevard.

6. HAMBURG DRIVE FROM WILLIAMS STREET TO HAMBURG MOUNTAIN ROAD - Cut into and winding around the lower elevations of Hamburg Mountain, this one lane section of Hamburg Drive offers little if any sight distance or passing room. Consequently, it primarily serves only the three homes abutting it. For safety purposes and in order to facilitate its role as part of an alternate to Main Street, this portion of Hamburg Drive needs to be widened to 24 feet and realigned. The old roadbed would be maintained as access to the homes.

7. HAMBURG MOUNTAIN ROAD (SR 2123) - Hamburg Mountain Road serves as a two lane residential thoroughfare. Residents

from the immediate surrounding neighborhoods as well as those living further southeast of town utilize it to access Main Street and Weaver Boulevard. In the initial recommendations for this report, it was recommended that Hamburg Mountain Road be widened to 24 feet from Reems Creek Road to Hamburg Drive in order to encourage its use as an alternate to Main Street. However, in light of discussions with concerned residents, it is now recommended that this section be improved as traffic volumes increase in a manner necessary to insure a safe and efficient roadway. Improvements could include additional signage and guardrails, straightening of curves, and/or some widening.

8. US 25-70 - US 25-70 is routed with US 19-23 to the Weaver Boulevard interchange where it heads northwest to Tennessee and is no longer controlled access. A rural highway, US 25-70 diminishes from four lanes to two approximately eight miles outside of Weaverville. No capacity problems are forecast for US 25-70; therefore, no improvements beyond normal maintenance are recommended during the planning period.

MINOR THOROUGHFARES

1. CLARKS CHAPEL ROAD (SR 1733) - Clarks Chapel Road acts as a rural connection between North Buncombe High School and residences to the south. Although the land in the vicinity of the high school and nearby elementary school is potentially a high growth area, no capacity problems are anticipated for Clarks Chapel Road. However, from a safety standpoint, this road should be widened to 24 feet when funds become available. The narrow, winding road is designated 55 mph and carries heavy school traffic (buses and young drivers). When widening, curves should be straightened where possible.

2. HIGHLAND DRIVE (SR 1796) - Highland Drive is a residential thoroughfare serving the neighborhoods west of Main Street. No capacity problems are predicted for this street during the planning period; therefore, no improvements beyond normal maintenance are recommended for the existing roadway.

   It is recommended that Highland Drive be extended to Sherwood Street and that Sherwood Street be linked to Weaver Boulevard. One home would be taken due to this construction. This facility is recommended to be 24 feet wide, requiring some widening of Sherwood Street. The extension will provide an additional way for neighborhood residents to access Weaver Boulevard thus relieving Main Street of part of the expected traffic congestion. As Main Street becomes heavily congested, some non-neighborhood "cut-through" traffic will use

this extension and Church Street to avoid the Main Street/Weaver Boulevard-Williams Street intersection. At this time, some signage could be installed to keep vehicles at a slow speed appropriate for a neighborhood and to keep trucks off of this minor thoroughfare. Initially, however, neighborhood residents will primarily use the extension to access Weaver Boulevard since it is a less direct route for those already on Main Street.

The Town does not currently consider the Highland Drive/Sherwood Street extension to be feasible partially due to the non-neighborhood traffic it might draw and partially due to cost restraints. The Town did not adopt this proposal as part of Weaverville Thoroughfare Plan. If, at some future date, the Town decides to implement this recommendation, then it should consider requesting that developers of land in the vicinity of the proposed extension fund this improvement. In NCDOT's experience, most developers welcome and even solicit additional access to their property.

3. CHURCH STREET (SR 1721) - Church Street connects Highland Drive to Main Street, thereby providing the surrounding residential area with access to the rest of town. Although no capacity problems are anticipated, Church Street should be widened as needed in conjunction with the extension of Highland Drive and Sherwood Street in order to relieve Main Street of part of the expected traffic congestion. Like the recommended extension, Church Street is also expected to receive some future "cut-through" traffic. This new traffic might require a traffic signal at the intersection of Main Street and Church Street. Previously, requests for a signal at this intersection have been denied.

   Since the Town did not adopt the Highland Drive/Sherwood Street extension, the widening of Church Street is no longer beneficial from a traffic standpoint. It might contribute to increased parking in central Weaverville. In the thoroughfare plan adopted in 1985, it was recommended that parking also be added to Church Street. The Town may wish to reconsider this addition when parking is removed from Main Street.

4. No improvements beyond normal maintenance are recommended for the following minor thoroughfares during the planning period:

   MONTICELLO ROAD - Monticello Road links US 19-23 Bypass and Business before continuing southwest. Small commercial development exists between US 19-23 Bypass and Business. This facility provides access to US 19-23 for the residents of western Weaverville.

AIKEN ROAD - Aiken Road serves as a rural thoroughfare between New Stock Road and Merrimon Avenue. Although primarily undeveloped at present, land along this route could be classified as mixed use. A few single family homes, a small apartment complex, farms, and an industrial plant are located on Aiken Road. A resthome is planning to locate here.

NEW STOCK ROAD - New Stock Road is a rural collector which runs north-south between Monticello Road and US 19-23 Business and Bypass. As the major north-south route west of the bypass, it serves residents living in western Weaverville. A new 38-home subdivision is being built on it. New Stock Road exhibits good potential for commercial development in the vicinity of the interchange.

HILLSIDE STREET - This steep, residential street connects Main Street and Reems Creek Road. Consequently, it serves as a cut-through for traffic avoiding the Main Street/Reems Creek Road intersection. When this intersection is improved, some traffic is expected to switch off of Hillside Street and on to Main Street.

BANKSTOWN ROAD - Bankstown Road links Reems Creek Road with Main Street. Although it links two major thoroughfares, its location makes it useful only to traffic from the southeast desiring to access the Champion Finishing Company or Lake Louise. The Town Land Use Plan proposes high density housing along it which, if realized, would create higher traffic volumes.

DOGWOOD DRIVE - This facility serves as a residential thoroughfare. Several neighborhoods use it as their primary access. Dogwood Drive, heavily developed with homes itself, has numerous driveways tying into it. In addition, some traffic currently uses it as an alternate to Main Street.

HERRON COVE ROAD - Herron Cove Road acts as a radial from the southeast.

LONGS CHAPEL ROAD - Longs Chapel Road also acts as a radial from the southeast.

DULA SPRINGS ROAD - Dula Springs Road serves the very small community of Dula Springs, collecting traffic north of Hamburg Mountain and depositing it on Main Street. The Town Land Use Plan currently proposes new housing at the Main Street intersection.

OLLIE WEAVER ROAD - Ollie Weaver Road acts as a rural

connector between Clarks Chapel Road and Monticello Road. It ties into Monticello Road near US 25-70.

BICYCLE RECOMMENDATIONS

In conjunction with the citizen meetings concerning the recommended thoroughfare plan, discussions were held concerning the feasibility of encouraging bicycle use as an alternate mode of travel in Weaverville. These discussions were led by a member of the Asheville Urban Area Bicycle Task Force. This task force is composed of concerned citizens, area bicycle shop owners, and Land-of-Sky Regional Council (LOSRC) staff. The task force has been meeting for several years and is currently inventorying roads according to their safety and level of difficulty. This inventory is the basis for recommending bicycle routes and "bicycle-friendly" road improvements. Road improvements to facilitate bicycle use are recommended by the task force for consideration in the Priority Needs Statement and eventually in the Transportation Improvement Program (TIP). This task force recommended a Weaverville Bicycle Route Plan which was adopted by the Town on May 18, 1992. The NCDOT Bicycle Program appropriated funds for bicycle signage in fiscal year 1992-1993. NCDOT has requested that the Asheville Urban Area Bicycle Task Force supply the DOT with the criteria and methodology utilized to make its recommendations. At this time, the NCDOT has not received sufficient documentation for fully evaluating the proposed recommendations. When this information is received and the newly-created NCDOT Pedestrian and Bicycle Task Force has decided upon a procedure to evaluate local efforts and include valid recommendations in the thoroughfare plan, the proposed recommendations will be considered for inclusion. Bicycles will be addressed in the Asheville Urban Area Thoroughfare Plan Study which includes Weaverville.

ADDITIONAL TRANSPORTATION CONCERNS

The Town of Weaverville requested that the NCDOT study the feasibility of locating a new interchange on US 19-23 Bypass at Aiken Road. When an interchange is requested on an interstate (US 19-23 is included on the Transportation Improvement Program to become an interstate), it must be submitted to the Federal Highways Administration in an Interchange Justification Study. Several preliminary factors are studied and must be satisfied before more detailed analysis of other factors is conducted. These preliminary factors include the spacing between interchanges, the purpose the additional interchange will serve, and the alternatives to adding an interchange. Initial study of these factors indicate that a new interchange is not warranted. Appendix D discusses this study. Should Weaverville experience extreme growth in the area of Aiken Road at US 19-23, the Town and NCDOT will study the need for an interchange again.

Consideration was also given to tying Pink Fox Road to Dula Springs Road in order to provide another north-south connector. This new facility is not recommended for this planning period (present to year 2020). This improvement should be reconsidered if the area south and east of the golf course on Pink Fox Road undergoes heavy development and the area north of town attracts more development, especially industrial. Although these areas could potentially support high growth and are currently growing, the intensity of development needed to justify a connector is not anticipated before the year 2020. In addition, construction of this project would require crossing a mountain range. Although a gap does exist, this project would still be an expensive endeavor not to be attempted until justified.

In addition to regular Town Council meetings, Weaverville citizens were given three formal opportunities to express their opinions to DOT representatives. A Public Workshop was held on March 12, 1991. A Public Hearing was held on April 9, 1991 and also July 9, 1991. Through these meetings, the citizens of Weaverville and their representatives have presented numerous transportation concerns to NCDOT. While some of these concerns are addressed in this report, others were deemed inappropriate for a thoroughfare plan and were directed to the appropriate departments within the NCDOT. A list of those concerns follows:

--accidents/confusion at Weaver Boulevard/US 19-23 northbound exit ramp
--guardrail at Lake Louise
--traffic signal at McDonalds on Weaver Boulevard
--traffic signal at intersection of Church Street and Main Street
--perceived traffic backup on northbound exit ramp at New Stock Road interchange
--speed limit on Clarks Chapel Road
--speed limit on Hamburg Mountain Road
--speed limit west of Weaver Boulevard interchange
--sharp curve signage on Hamburg Mountain Road
--pedestrian heads at intersection of Main Street and Weaver Boulevard
--sight distance at intersection of Clarks Chapel Road and Green Ridge Road

V. CONSTRUCTION PRIORITIES AND COST ESTIMATES

Construction priorities are based on the results of an evaluation of the proposed projects with respect to user benefits, cost, economic development potential, environmental impact, and relationship to the state arterial system. User benefits include the savings which result from an improvement which causes a reduction in vehicle operating costs, travel time costs, and accident costs. Construction cost estimates are based on general statewide averages of construction costs with consideration given to the increased costs associated with mountainous terrain. Final costs will vary from these estimates. The economic development potential is an estimate of the effect a project will have on the economic environment by stimulating development in the immediate area by increasing the level of service or accessibility to an adjacent area.

Environmental and social impacts are integral factors in highway project evaluation. Factors which are considered include air and noise quality, water resources (watersheds and wetlands), soils and geology, wildlife, vegetation, historic properties, neighborhoods, schools, churches, and parklands. Public health and safety are paramount. The major concerns in Weaverville are Lake Louise, the Dry Ridge Inn, and protecting the integrity of Weaverville's neighborhoods and the safety of its citizens. When recommending road improvements, NCDOT attempts to avoid all negative environmental and social impacts. When such impacts cannot be avoided, NCDOT strives to minimize and mitigate them.

The results of the benefits analysis are given in the following table. The projects are listed according to net benefits (user costs minus construction costs). The following costs do not include right-of-way costs. When project planning studies are initiated, more detailed environmental studies will be conducted and more accurate cost estimates will be determined. Not all of the recommendations were included in the benefits analysis. Those which are proposed primarily for safety purposes are not included and should be considered separately. These projects are: the Clarks Chapel Road widening, New Stock and Monticello interchange improvements, the Hamburg Mountain Road improvements, and the Reems Creek Road/Main Street realignment. Some of the remaining recommended improvements were combined for the purposes of benefits analysis. These projects include: the Hamburg Drive and Williams Street improvements, the Highland Drive/Sherwood Street extension and Church Street widening, and the Weaver Boulevard widening and Weaver Boulevard-Williams Street/Main Street intersection improvements. Since conditions are constantly changing, the priorities should be evaluated prior to construction.

Table 2.
Project Benefits Analysis

Project	Length (miles)	Net Benefits (in thousands of dollars)	User Benefits	Constr. Costs	Economic Development (0 - 1.00)	Enviro. Impact (+/0/-)
Hamburg Dr/Williams Rd improvements	0.36	20,069	20,353	284	0	+
US 19-23 Bypass widening	2.97	16,215	19,185	2,970	0.55	+
Merrimon Ave (A) widening	1.80	13,795	15,955	2,160	0.44	+
Highland Dr/Sherwood St/Church St improvements	0.70	13,367	13,813	446	0.13	+
Reems Creek Rd widening	2.00	12,556	14,756	2,200	0.13	0
Weaver Blvd widen to 5 lanes	0.68	12,297	13,067	770	1.00	+
Merrimon Ave (C) widening	0.68	4,650	5,380	730	0.14	0
Weaver Blvd widen to 3 lanes	0.43	3,713	4,014	301	1.00	+
Main St restriping	0.42	1,888	1,938	50	0.28	+
Merrimon Ave (B) widening	0.23	1,605	1,881	276	0.06	0

An alternative to any of the proposed projects is the "do-nothing" alternative. According to the do-nothing concept, no improvements would be made to the existing streets and no new facilities would be constructed. Some major advantages of doing nothing include:

1. No capital investment cost.
2. No construction traffic disruption.
3. No noise, air, or water pollution due to construction.
4. No removal of shrubs or trees.
5. No additional land acquisition.
6. No displacement of homes or businesses as a result of construction.

There are, however, several disadvantages to a do-nothing policy which have significant adverse impacts on the community. These include:

1. Increasing traffic volumes and congestion on major streets which will cause traffic to divert to residential streets.
2. Existing "bottleneck" conditions will become worse.
3. Social, health, and safety standards will deteriorate.
4. Increased road user costs.
5. Increased driving time.
6. Increased accidents.
7. Increased air and noise pollution induced by traffic congestion.
8. Reduced mobility for emergency vehicles.
9. Increased transportation costs for businesses.
10. Reduced retail sales as a result of increased congestion, reduced accessibility, and higher transportation costs.
11. Increased driver and public frustration due to congestion.

The "do-nothing" alternative concept, while an alternative, is not a viable alternative in light of the consequences identified.

VI. ADOPTION AND IMPLEMENTATION

Once the thoroughfare plan is developed, it is presented to the Town's governing body of officials and the public at a council meeting, Public Workshop, or some combination of the two. After these discussions and any necessary revisions, the plan is presented at a Public Hearing. The Public Hearing is an opportunity for the public to voice their opinions in an official manner before their governing officials vote on the adoption of the plan. These officials need only to adopt the thoroughfare plan map but may also adopt the accompanying report. Once the Town has adopted the thoroughfare plan, the Board Members of the North Carolina Department of Transportation normally adopt the plan at their next meeting. The thoroughfare plan then is a document stating that both the Town and the NCDOT approve of the classification of the street system and recognize the need for the recommended improvements. This plan does not guarantee that these improvements will be built, but it can be used as a tool to gain support for including a specific improvement on the State's Transportation Improvement Program. Commonly referred to as "the T.I.P.", this document is a list of projects slated for funding by the NCDOT. More detailed information concerning the implementation of the thoroughfare plan is available in Appendix C: Administrative Controls and Implementation Tools.

NCDOT conducted a series of meetings with the town manager, town council, and residents of Weaverville which spanned the period of March to September 1991. Correspondence continued with the Town into February 1992. On February 17, the Town Council adopted the recommended thoroughfare plan map excluding the Highland Drive/Sherwood Street extension. Figure 6 shows the adopted plan. The adoption resolution is in Appendix B. The Board of Transportation mutually adopted the thoroughfare plan map on March 6, 1992. This will remain the official plan until mutually amended by both Weaverville and the Board of Transportation. NCDOT staff continues to recommend strongly that the Town amend its resolution to include the Highland Drive/Sherwood Street extension. This improvement is necessary if Main Street is to remain uncongested.

Revision of the thoroughfare plan by NCDOT can be requested should the Town experience some unforeseen growth. NCDOT will maintain contact with the Town through the ongoing Metropolitan Planning Organization (MPO) planning process of which Weaverville and NCDOT are a part. Changes in land use and traffic patterns can be monitored through this process and periodic updates of the plan may occur as needed.

APPENDIX A

TYPICAL CROSS SECTIONS

Typical cross sections recommended by the Thoroughfare Planning Unit are shown in Appendix A, Figure A-1.

Cross section "A" is illustrative for controlled access freeways. The 46 foot grassed median is the minimum median width. Wider variations could result depending upon design considerations. Slopes of 8:1 into 3 foot drainage ditches are desirable for traffic safety. Right-of-way requirements would typically vary upward from 250 feet depending upon cut and fill requirements. US 19-23 Bypass is an example.

Cross section "B" is typical for four lane divided highways in rural areas which may have only partial or no control of access. The minimum median width for this cross section is 30 feet, but a wider median is desirable. Design requirements for slopes and drainage would be similar to cross section "A", but there may be some variation from this depending upon right-of-way constraints. US 25-70 past Weaver Boulevard is an example.

Cross section "C", seven lane urban, and cross section "D", five lane urban, are typical for major thoroughfares where frequent left turns are anticipated as a result of abutting development or frequent street intersections.

Cross sections "E" and "F" are used on major thoroughfares where left turns and intersecting streets are not as frequent. Left turns would be restricted to a few selected intersections.

Cross section "G" is recommended for urban boulevards or parkways to enhance the urban environment and to improve the compatibility of major thoroughfares with residential areas. A minimum median width of 24 feet is recommended with 30 feet being desirable.

Typical cross section "H" is recommended for major thoroughfares where projected travel indicates a need for four travel lanes, but traffic is not excessively high, left turning movements are light, and right-of-way is restricted. An additional left turn lane probably would be required at major intersections.

Thoroughfares which are proposed to function as one-way traffic carriers would typically require cross section "I". Cross section "J" and "K" are usually recommended for minor thoroughfares since these facilities usually serve both land service and traffic service functions. Cross section "J" would be used on those minor thoroughfares where parking on both sides is needed as a result of more concentrated development.

Cross section "L" is used in rural areas or for staged construction of a wider multilane cross section. On some

thoroughfares projected traffic volumes may indicate that two travel lanes will adequately serve travel for a considerable period of time.

The curb and gutter cross sections all illustrate the sidewalk adjacent to the curb with a buffer or utility strip between the sidewalk and the minimum right-of-way line. This permits adequate setback for utility poles. If it is desired to move the sidewalk further away from the street to provide added separation for pedestrians or for aesthetic reasons, additional right-of-way must be provided to insure adequate setback for utility poles.

Rights-of-way shown for the typical cross sections are the minimum rights-of-way required to contain the street, sidewalks, utilities, and drainage facilities. Cut and fill requirements may require either additional right-of-way or construction easements. Obtaining construction easements is becoming the more common practice for urban thoroughfare construction.

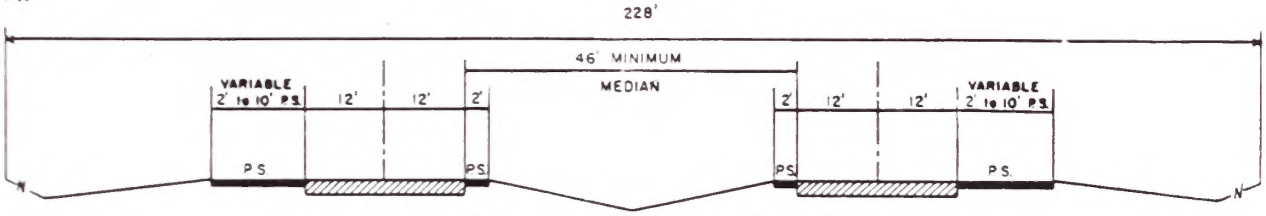
If there is sufficient bicycle traffic along the thoroughfare to justify a bicycle lane or bikeway, additional right-of-way may be required to allow for the bicycle facilities. The North Carolina Bicycle Facility and Program Handbook should be consulted for design standards for bicycle facilities.

Recommended typical cross sections for thoroughfares were derived on the basis of projected traffic, existing capacities, desirable levels of service and available right-of-way.

FIGURE A - 1

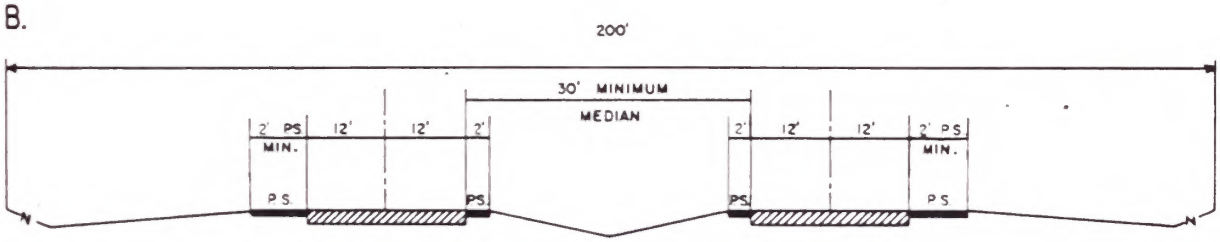
TYPICAL THOROUGHFARE CROSS SECTIONS

A.



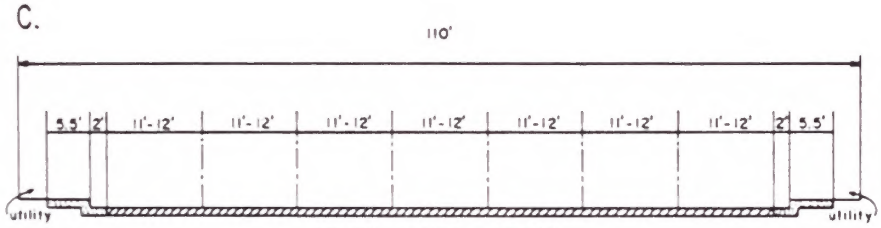
FOUR LANES DIVIDED WITH MEDIAN - FREEWAY

B.



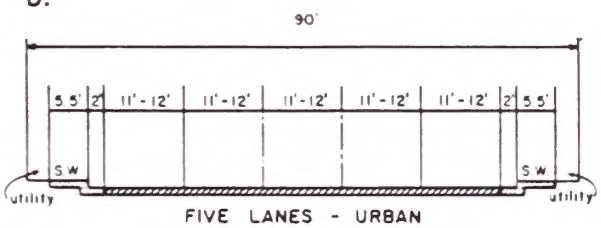
FOUR LANES DIVIDED WITH MEDIAN - RURAL

C.



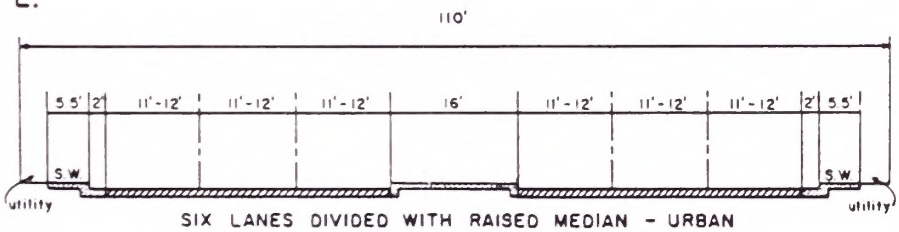
SEVEN LANES - URBAN

D.



FIVE LANES - URBAN

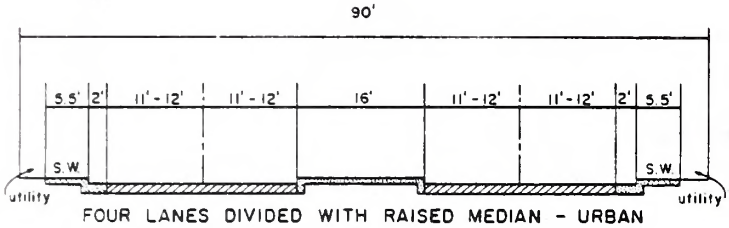
E.



SIX LANES DIVIDED WITH RAISED MEDIAN - URBAN

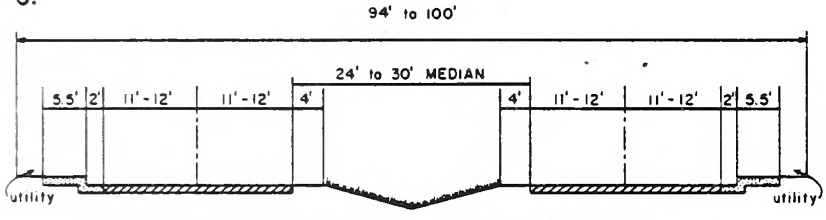
TYPICAL THOROUGHFARE CROSS SECTIONS
(CONTINUED)

F.



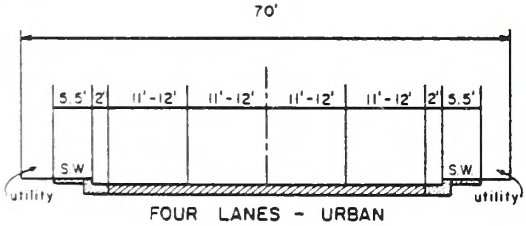
FOUR LANES DIVIDED WITH RAISED MEDIAN - URBAN

G.



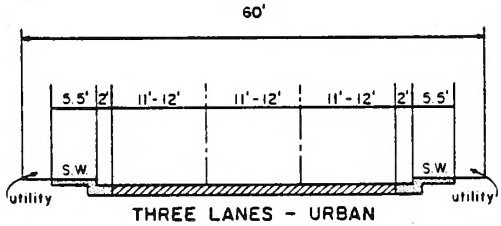
FOUR LANES DIVIDED - URBAN BOULEVARD
GRASS MEDIAN

H.



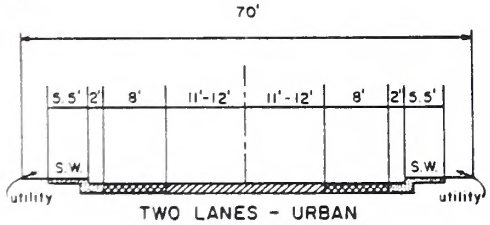
FOUR LANES - URBAN

I.



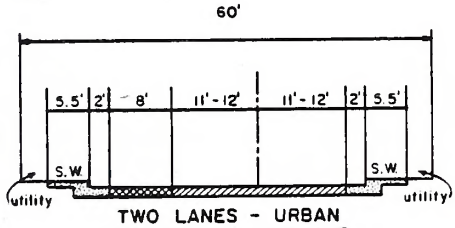
THREE LANES - URBAN

J.



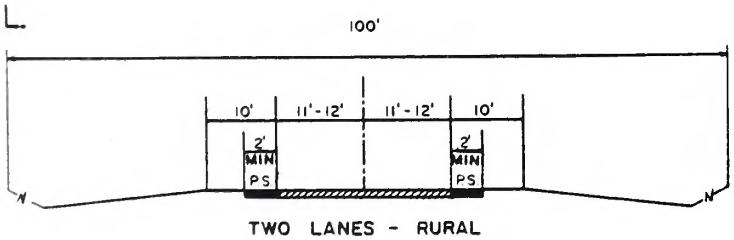
TWO LANES - URBAN
PARKING ON EACH SIDE

K.



TWO LANES - URBAN
PARKING ON ONE SIDE

L.

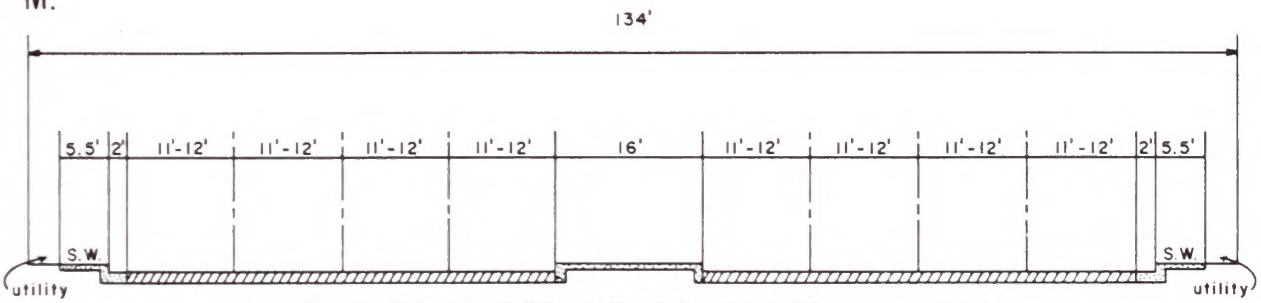


TWO LANES - RURAL

TYPICAL THOROUGHFARE CROSS SECTIONS

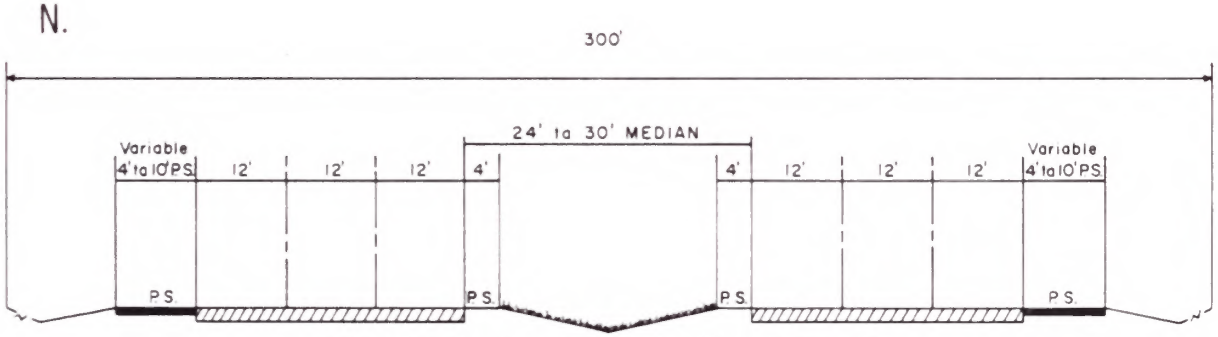
(CONTINUED)

M.



EIGHT LANES DIVIDED WITH RAISED MEDIAN - URBAN

N.



SIX LANES DIVIDED - RURAL FREEWAY
GRASS MEDIAN

TABLE A-1
THOROUGHFARE PLAN TABULATION AND RECOMMENDATIONS

FACILITY & SECTION	EXISTING X - SECTION LENGTH (MI)	WIDTH (FT)	ROW (FT)	CURRENT CAPACITY	1989 AADT	FUTURE CAPACITY	2020 AADT	RECOMMENDED X - SECTION RDWY/3 (FT)	ROW/4
US 19-23									
MONTICELLO RD-1.95 MI N OF MONTICELLO	1.95	24X2	260	54,000	16,000	54,000	28,000	ADQ	ADQ
WEAVER BLVD-MONTICELLO RD	0.60	24x2	260	54,000	16,000	54,000	28,000	ADQ	ADQ
US 19-23 BYPASS/US 25-70									
WEAVER BLVD-SR 1839	2.97	24X2	260	54,000	28,000	81,000	60,000	72	N
US 19-23 BUSINESS/MAIN ST (SR 2127)									
WILDWOOD PARK-US 19-23 BYPASS	0.50	30	2200	12,000	NA	12,000	4,000	ADQ	ADQ
WILDWOOD PARK-WEAVER BLVD	0.30	30	NA	10,500	NA	10,500	10,500	ADQ	ADQ
WEAVER BLVD-HAMBURG MTN RD	0.15	30	NA	10,500	9,000	16,000	15,000	38/1	ADQ
HAMBURG MTN RD-MOORE ST	0.02	38	NA	10,500	8,600	16,000	16,000	38/1	ADQ
MOORE ST-MERRIMON AVE	0.25	38	NA	10,500	8,600	16,000	16,000	38/1	ADQ
US 19-23 BUS/MERRIMON AVE									
MAIN ST-BROWN ST	0.23	24	60	10,500	6,000	30,000	12,000	64	D
BROWN ST-CHAMPION PLANT	0.68	24	60	10,500	6,000	28,000	12,000	52	H
CHAMPION PLANT-OLD HOME RD	0.90	24	60	10,500	13,000	37,000	23,000	64	D
US 25-70									
US 19-23 BYP/US 25-70-SR 1837	1.50	24X2	60	50,000	12,000	50,000	40,000	ADQ	ADQ
AIKEN RD (SR 1720)									
US 19-23 BUS-NEW STOCK RD	0.94	16	60	7,000	1,200	7,000	4,100	ADQ	ADQ
BANKSTOWN RD (SR 2205)									
US 19-23 BUS-REEMS CREEK RD	0.40	16	NA	6,500	400	6,500	1500	ADQ	ADQ
CHURCH ST (SR 1721)									
US 19-23 BUS-HIGHLAND DR	0.60	18	NA	6,500	700	10,500	5,000/5	28	J
CLARKS CHAPEL RD (SR 1733)									
US 19-23 BUS-SR 1735	2.33	16	60	5,500	900	10,500	4,000	24	L
DOGWOOD DR (SR 2124)									
REEMS CREEK RD-HAMBURG MTN RD	0.90	18	60	8,500	500	9,000	2,500	ADQ	ADQ
DULA SPRINGS RD (SR 2130)									
US 19-23 BUS-1.2 MI E OF WOTENS COVE	1.10	18	NA	9,000	1,800	9,000	2,000	ADQ	ADQ
HAMBURG DR									
MAIN ST/US 19-23 BUS-WILLIAMS ST	0.25	16	NA	6,500	NA	6,500	2,000	ADQ	ADQ
HAMBURG MTN RD (SR 2123)									
REEMS CREEK RD-0.37 MI E OF MAIN ST	1.51	16	NA	6,500	600	10,500	6,000	24	L
0.37 MI E OF MAIN ST-MAIN ST	0.37	16	NA	6,500	1,400	6,500	2,000	ADQ	ADQ
HERRON COVE RD (SR 2098)									
SR 2197-0.3 MI S OF SR 2102	1.48	18	NA	9,000	1,000	9,000	1,400	ADQ	ADQ
HERRON COVE RD (SR 2197)									
REEMS CREEK RD-SR 2098	0.28	16	NA	7,000	1,000	7,000	1,400	ADQ	ADQ
HIGHLAND DR (SR 1796)									
LAKESHORE DR-CHURCH ST	1.02	16	NA	6,500	600	6,500	1,100	ADQ	ADQ
CHURCH ST-WEAVER BLVD/2	0.30	16	NA	6,500	NA	10,500	5,000/5	24	L
HILLSIDE ST (SR 2128)									
US 19-23 BUS-REEMS CREEK RD	0.28	17	NA	6,500	2,000	6,500	4,000	ADQ	ADQ

/1 = REMOVE PARKING
/2 = CURRENTLY SHERWOOD ST
/3 = ULTIMATE ROADWAY WIDTH
/4 = SEE FIGURE A-1
/5 = ASSUMES HIGHLAND DR IS EXTENDED
ADQ - ADEQUATE
NA - NOT AVAILABLE

TABLE A-1
THOROUGHFARE PLAN STREET TABULATION AND RECOMMENDATIONS

FACILITY & SECTION	EXISTING X - SECTION LENGTH (MI)	WIDTH (FT)	ROW (FT)	CURRENT CAPACITY	1989 AADT	FUTURE CAPACITY	2020 AADT	RECOMMENDED X - SECTION RDWY/3 FT)	ROW/4
LONGS CHAPEL RD (SR 2101)									
HERRON COVE RD-SR 2102	1.19	18	NA	9,000	700	9,000	2,000	ADQ	ADQ
MAIN ST (SR 2127)/US 19-23 BUS									
WILDWOOD PARK-US 19-23 BYPASS	0.50	30	NA	12,000	2700	12,000	4,000	ADQ	ADQ
WILDWOOD PARK-WEAVER BLVD	0.30	30	NA	10,500	NA	10,500	10,500	ADQ	ADQ
WEAVER BLVD-HAMBURG MTN RD	0.15	30	NA	10,500	9,000	16,000	15,000	38/1	ADQ
HAMBURG MTN RD-MOORE ST	0.02	38	NA	10,500	8,600	16,000	16,000	38/1	ADQ
MOORE ST-MERRIMON AVE	0.25	38	NA	10,500	8,600	16,000	16,000	38/1	ADQ
MAIN ST (SR 2127)									
MERRIMON AVE-YOST ST	0.56	31	NA	10,500	1,800	10,500	10,000	ADQ	ADQ
YOST ST-REEMS CREEK RD	0.06	22	NA	10,500	1,800	10,500	10,000	ADQ	ADQ
MERRIMON AVE/US 19-23 BUS									
MAIN ST-BROWN ST	0.23	24	60	10,500	6,000	30,000	12,000	64	D
BROWN ST-CHAMPION PLANT	0.68	24	60	10,500	6,000	28,000	12,000	52	H
CHAMPION PLANT-OLD HOME RD	0.90	24	60	10,500	13,000	37,000	23,000	64	D
MONTICELLO RD (SR 1727)									
US 19-23 BUS-US 19-23 BYP	0.30	24	200	12,000	1,700	12,500	5,000	ADQ	ADQ
US 19-23 BYP-US 25-70	0.90	18	200	9,000	2,000	9,000	3,000	ADQ	ADQ
NEW STOCK RD (SR 1740)									
MERRIMON AVE/US 19-23 BUS-AIKEN RD	0.50	24	NA	13,000	2,500	13,000	5,000	ADQ	ADQ
AIKEN RD-MONTICELLO RD	0.60	20	NA	9,000	1,400	9,000	3,000	ADQ	ADQ
OLLIE WEAVER RD (SR 1730)									
MONTICELLO RD-CLARKS CHAPEL RD	1.03	18	60	7,500	500	9,000	5,000	ADQ	ADQ
SR 2207 (OLD US 19-23)									
MONTICELLO RD-CLARKS CHAPEL RD	1.71	30	60	13,000	1800	13,000	3,000	ADQ	ADQ
REEMS CREEK RD (SR 1003)									
MERRIMON AVE-HAMBURG MTN RD	2.00	20	60	11,000	5,000	35,000	12,000	52	H
WEAVER BLVD (SR 1725)									
US 19-23 BUS-US 19-23 BYP	0.68	24	60	11,000	6,000	30,000	22,000	64	D
WILLIAMS ST									
MAIN ST-HAMBURG DR	0.16	16	NA	6000	NA	10,500	6000	24	L

/1 = REMOVE PARKING
/2 = CURRENTLY SHERWOOD ST
/3 = ULTIMATE ROADWAY WIDTH
/4 = SEE FIGURE A-1
/5 = ASSUMES HIGHLAND DR IS EXTENDED
ADQ - ADEQUATE
NA - NOT AVAILABLE

APPENDIX B

RESOLUTION ADOPTING THE TOWN OF WEAVERVILLE THOROUGHFARE PLAN

WHEREAS, the Town of Weaverville and the Planning and Environmental Branch, North Carolina Department of Transportation are actively involved in transportation planning for the Town of Weaverville; and

WHEREAS, this plan will be incorporated into the combined transportation plan for the Asheville Urban area; and

WHEREAS, each Municipality and the Department of Transportation are directed by North Carolina General Statutes 136.66.2 to reach agreement for a street system that will serve present and anticipated volumes of vehicular traffic in and around the Municipality; and

WHEREAS, it is recognized that the proper movement of traffic within and through the Town of Weaverville is a highly desirable element of the comprehensive plan for the orderly growth and development of the urban area; and

WHEREAS, as Hamburg Mountain Road traverses a residential neighborhood carrying local traffic, and also serves as a major thoroughfare which currently carries thru traffic and is expected to continue to serve thru traffic, it is recommended not to widen the road from 16 feet to 24 feet. Instead, as traffic increases, the recommendation is to improve the road as necessary to maintain safe and efficient operating conditions as desired by the Town Council of the Town of Weaverville; and these improvements may include additional signage and guard rails, straightening of curves, and some widening; and

WHEREAS, as of this date NCDOT planners do not foresee the need for an additional interchange between Reems Creek Road and Highway 19-23, but the Town Council of the Town of Weaverville recommends this interchange in the vicinity of Aiken Road as a high priority, and the Town staff will continuously monitor the traffic needs of this area to justify the future feasibility of an interchange at this location; and

WHEREAS, the Town Council of the Town of Weaverville strongly support the merchants and downtown central business district, and NCDOT planners expect that Main Street will experience congestion in the future which will require improvements to Main Street, and the Town Council of Weaverville recommends that the removal of on-street parking on Main Street be considered as only a last resort as additional capacity is needed for the efficient movement of traffic; and

WHEREAS, after full study of the plan, the Town Council of the Town of Weaverville feels it to be in the best interests of the Town of Weaverville to adopt the said plan, with the above mentioned amendments, and recommend its adoption to the North Carolina Department of Transportation;

NOW, THEREFORE BE IT RESOLVED: That the Town Council believes that it is in the best interest of its citizens to delete the Sherwood Road connector between Highland Street and Weaver Boulevard from the plan; and that the Weaverville Thoroughfare Plan as shown on a map dated April 9, 1991and prepared by the Town of Weaverville and the Planning and Environmental Branch, North Carolina Department of Transportation, be approved, with the deletion noted therein, and adopted as a guide in the development of the street and highway system in the Town of Weaverville and the same is hereby recommended to the North Carolina Department of Transportation for its subsequent adoption:

Adopted this 17th day of February, 1992.

Larry T. Sprinkle, Mayor

Shelby Shields, Town Clerk

APPENDIX C

ADMINISTRATIVE CONTROLS AND IMPLEMENTATION TOOLS

State and Municipal Adoption of the Thoroughfare Plan

Chapter 136, Article 3A, Section 136-66.2 of the General Statutes of North Carolina provides that after development of a thoroughfare plan, the plan may be adopted by the governing body of the municipality and the Department of Transportation to serve as the basis for future street and highway improvements. The General Statutes also require that, as part of the plan, the governing body of the municipality and Department of Transportation shall reach agreement on responsibilities for existing and proposed streets and highways included in the plan. Facilities which are designated a State responsibility will be constructed and maintained by the Division of Highways. Facilities which are designated a municipal responsibility will be constructed and maintained by the municipality.

After mutual plan adoption, the Department of Transportation will initiate negotiations leading to determining which of the existing and proposed thoroughfares will be a Department responsibility and which will be a municipal responsibility. Chapter 136, Article 3A, Section 136-66.1 of the General Statutes provides guidance in the delineation of responsibilities. In summary, these statutes provide that the Department of Transportation shall be responsible for those facilities that serve volumes of through traffic and traffic from outside the area to major business, industrial, governmental, and institutional destinations located inside the municipality. The municipality is responsible for those facilities that serve primarily internal travel.

Unless implementation is an integral part of the transportation planning process, the effort and expense associated with developing a plan is lost. To neglect the implementation process is a three-fold loss - the loss of the capital expenditures used in developing a plan, the opportunity cost of the capital expenditures, and more importantly the loss of the benefits that would accrue from an improved transportation system.

Administrative controls and implementation tools that can aid in the implementation process are generally available to municipalities through Federal and State Legislation. These controls and tools will be discussed in this chapter. They include: Subdivision Regulations, Zoning Ordinances, Official Maps, Urban Renewal, Capital Improvements Programs, and Development Reviews. Generally two issues play a major role in the implementation process - available finances and citizen involvement. Effective use of the controls and tools

listed above are indicative of good planning and minimize the effects of limited finances and negative citizen reaction to specific elements of a plan. It is through good planning that maximum use is made of every available dollar and that citizen involvement and approval of the transportation plan is obtained.

Available Controls and Tools

Subdivision Regulations

Subdivision regulations are locally adopted laws governing the process of converting raw land into building sites. From the planner's view, subdivision regulations are important at two distinct levels. First, they enable him to coordinate the otherwise unrelated plans of many individual developers. This process assures that provision is made for land development elements such as roadway right-of-way, parks, school sites, water lines and sewer outfalls, and so forth. Second, they enable him to control the internal design of each new subdivision so that its pattern of streets, lots, and other facilities will be safe, pleasant, and economical to maintain.

To be most effective, subdivision regulations and their administration must be closely coordinated with other local governmental policies and ordinances. Among the more important of these are the Comprehensive Growth Plan, Utilities Extension Master Plan, and Thoroughfare Plan.

In practice, subdivision regulations can provide some very positive benefits such as requiring portions of major streets to be constructed in accordance with the Thoroughfare Plan, or requiring subdividers to provide for the dedication and/or reservation of rights-of-way in advance of construction. These practices reduce the overall cost of the plan by having some costs borne by developers. Recommended Subdivision Ordinances are included in Appendix F.

Zoning Ordinances

Zoning is probably the single most commonly used legal device available for implementing a community's land-use plan. To paraphrase the U.S. Department of Commerce 1924 Standard Zoning Enabling Act, on which most present-day legislation is based, zoning may be defined as the division of a municipality (or other governmental unit) into districts, and the regulation within the districts of:

1. the height and bulk of buildings and other structures,
2. the area of a lot that may be occupied and the size of required open spaces,
3. the density of population, and

4. the use of buildings and land for trade, industry, residence, or other purposes.

The characteristic feature of the zoning ordinance that distinguishes it from most other regulations is that it differs from district to district, rather than being uniform throughout a city. Thus, a given area might be restricted to single-family residential development with minimum lot size requirements and setback provisions appropriate for development. In other areas, commercial or industrial development might be permitted, and regulations would be enacted to control such development. Building code provisions or sanitary regulations, on the other hand, normally apply to all buildings in a certain category regardless of where they may be situated within a city.

The zoning ordinance does not regulate the design of streets, utility installation, the reservation or dedication of parks, street rights-of-way, school sites, and related matters. These are controlled by subdivision regulations or possibly by use of an official map. The zoning ordinance should however, be carefully coordinated with these and other control devices.

The zoning ordinance could be used to help preserve the right-of-way necessary to build the connector from Four Seasons Boulevard to US 25 South. Land in this area is slowly being converted from residential to Office and Retail.

Official Maps

The roadway corridor official map (or official map) is a document, adopted by the legislative body of the community, that pinpoints and preserves the location of proposed streets against encroachment. In effect, the official map serves notice on developers that the State or municipality intends to acquire certain specific property. The official map serves as a positive influence for sound development by reserving sites for public improvements in anticipation of actual need.

The NCDOT position is that it will limit the use of official maps to large scale, fully access controlled facilities planned for rapidly developing areas outside of municipal jurisdictions. For projects within municipal jurisdictions, official maps should be prepared and adopted by the local government. Municipalities may adopt official maps that extend beyond its extraterritorial jurisdiction with approval from the Board of County Commissioners.

It should be recognized that an official map places severe but temporary restrictions on private property rights. These restrictions are in the form of a prohibition, for up to three years, on the issuance of building permits or the

approval of subdivisions on property lying within an official map alignment. The three year reservation period begins with the request for development approval. This authority should be used carefully and only in cases where less restrictive powers are found to be ineffective.

Requests for NCDOT to prepare and adopt an official map should be directed to the manager of the Program, Policy and Budget Branch. For cities contemplating the adoption of an official map, there are two ways in which the city may proceed. The first is to consider the official map statute as a stand-alone authority and use it as the basis for local adoption of an official map. Alternatively, the second approach is to adopt a local ordinance modeled after the statute, but modified to fit local circumstances and clarify the statute. Regardless of the approach taken, several procedural steps will need to be considered, such establishing procedures for consideration of variance petitions.

Once the project has been selected and the alignment determined, maps must be prepared that are suitable for filing with the County Register of Deeds Office. The map should show the proposed alignment in sufficient detail to identify the functional design and the preliminary right-of-way boundaries. Since the purpose of the map is to show the effect on properties along the project path, the existing property boundaries should be identified. As an additional requirement, within one year of the adoption of an official map, work must begin on an environmental impact study or preliminary engineering.

It is important to recognize the risks inherent in the adoption of an official map prior to completing the environmental studies. Projects to be funded using any federal funds require the unbiased evaluation of alternate alignments. This means that other alternatives will be studied and compared to the protected alignment.[1]

The above information is only to serve as an introduction to official maps, and in no way provides the information necessary to begin development of an official map. The Program and Policy Branch of the North Carolina Department of Transportation is responsible for facilitating the adoption of Official Street Maps. Cities considering Official Street Map projects should contact this Branch for

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1 "Guidelines for Municipalities Considering Adoption of Roadway Corridor Official Maps," prepared by NCDOT Programming and Policy Branch.

their "Guidelines for Municipalities Considering Adoption of Roadway Corridor Official Maps" at:

Programming and Policy Branch
NC Department of Transportation
P.O. Box 25201
Raleigh, North Carolina 27611

Urban Renewal

Urban renewal plays a minor role in the transportation planning implementation process in terms of scope and general influence. However, under the right circumstances, renewal programs can make significant contributions. Provisions of the New Housing Act of 1974 (as amended) call for the conservation of good areas, rehabilitation of declining areas, and clearance of slum areas. In the course of renewal, it is important to coordinate with the Thoroughfare Plan to see if additional set-back or dedication of right-of-way is needed.

Continued use of the urban renewal programs to improve the transportation system is encouraged. Changes that can be made under this program are generally not controversial or disruptive given the trauma of the clearance of a significant area.

Capital Improvement Programs

Capital programs are simply the coordination of planning and money. The capital improvements program, with respect to transportation, is a long range plan for the spending of money on street improvements, acquisition of rights-of-way and other improvements within the bounds of projected revenues. Municipal funds should be available for construction of street improvements which are a municipal responsibility, right-of-way cost sharing on facilities designated a Division of Highways responsibility and advance purchase of right-of-way where such action is warranted.

Historically, cities and towns have depended, to a great degree, on Federal or State funding to solve their transportation problems. Chapter 136-Article 3A of the Road and Highway Laws of North Carolina clearly outlines the responsibilities and obligations of the various governmental bodies regarding highway improvements. North Carolina Highway Bill 1211, passed in 1988, limits the role of municipalities in right-of-way cost sharing for projects once they are programed in the NCDOT Transportation Improvement Program. Set-back regulations, right-of-way dedications and reservations play a major role in the ultimate cost of many facilities. Only in special cases will the municipality be able to enjoy the benefits of highway improvements without

some form of investment.

Development Reviews

Driveway access to a State-maintained street or highway is reviewed by the District Engineer's office and by the Traffic Engineering Branch of the North Carolina Department of Transportation prior to access being allowed. Any development expected to generate large volumes of traffic (ie. shopping centers, fast food restaurants, large industries, etc.) may be comprehensively studied by staff from the Traffic Engineering, Planning and Environmental, and Roadway Design Branches of NCDOT. If done at an early stage, it is often possible to significantly improve the development's accessibility at minimal expense. Since the municipality is the first point of contact for developers, it is important that the municipality advise them of this review requirement and cooperate in the review process.

Other Funding Sources

1. Assess user impact fees to fund transportation projects. These fees, called "facility fees" in the legislation, are to be based upon "reasonable and uniform considerations of capital costs to be incurred by the town as a result of new construction. The facility fee must bear a direct relationship to additional or expanded public capital costs of the community service facilities to be rendered for the inhabitants, occupants of the new construction, or those associated with the development process."

2. Enact a bond issue to fund street improvements.

3. Continue to work with NCDOT to have local projects included in the Transportation Improvement Program (TIP).

4. Consider the possibility of specific projects qualifying for federal demonstration project funds.

5. Adopt a collector street plan that would assess buyer or property owners for street improvement.

6. Charge a special assessment for utilities. For example, water and sewer bills could be increased to cover the cost of street improvements.

APPENDIX D

AIKEN ROAD INTERCHANGE JUSTIFICATION STUDY

This report outlines the considerations that led to determining that an additional interchange in the Weaverville area is not warranted. As part of updating the Weaverville thoroughfare plan, a proposal has been made by the public and supported by the Town Commissioners to include plans for a new interchange between the New Stock Road and Weaver Boulevard interchanges at Aiken Road (SR 1720). The attached figure illustrates the proposed interchange and the connector road which would be necessary to access the interchange. When an interchange is requested on an interstate facility (US 19-23 is included in the Transportation Improvement Program to become an interstate) it must be submitted to the Federal Highways Administration in an Interchange Justification Study.

Several preliminary factors which support an additional interchange are included in most Interchange Justification Studies. These include the spacing between interchanges, the purpose the additional interchange will serve, and alternatives to adding an interchange. If these factors do not support an additional interchange, more detailed analysis is not warranted. These preliminary factors are described in more detail below.

If the preliminary factors do support an additional interchange, other factors are analyzed. These include mainline and crossroad traffic volumes (including turning volumes for the current year, the implementation year, and the design year), detailed traffic and operational analysis for existing and proposed conditions (including mainline weaving analysis and crossroads analysis), and a cost benefit analysis. These items require detailed data and analysis that is not warranted if the interchange is not supported by the preliminary factors that are described below.

Spacing

In A Policy on the Geometric Design of Highways and Streets by AASHTO, the rule-of-thumb for minimum interchange spacing is 1 mile in urban areas and 2 miles in rural areas. It is important to note that these are minimum spacing guidelines that are applied across the United States including major urban areas such as Los Angeles and Chicago. There have previously been many exceptions to these guidelines, but FHWA is becoming more stringent on granting exceptions. No guidance is given on desirable spacing, although in previous years 4 miles in urban areas and 8 miles in rural areas has been used when calculating the benefit-cost ratio.

Although Weaverville is part of the Asheville Urban Area, it is a small town that continues to have many rural characteristics, operating somewhat as a satellite community to Asheville. The population, traffic volumes, and land-use plans do not support classifying Weaverville as urban for the purposes of an Interchange Justification Study. However, Weaverville is affected by its proximity to Asheville and close coordination of its road plans is desirable. Over the planning period Weaverville will continue to have traffic interrelationships with Asheville.

Between the Flat Creek Road (SR 2207) and the New Stock Road interchanges there are four interchanges in 4.1 miles. Currently there are 2.2 miles between the Weaver Boulevard and the New Stock Road interchanges. The proposed interchange at Aiken Road would increase the number of interchanges per mile in the Weaverville planning area from 0.98 to 1.2.

The interchange spacing guidelines do not support the proposed interchange at Aiken Road.

Purpose

This section is usually included when an additional interchange is warranted due to exceptional circumstances. For example, the addition of an interchange to allow emergency vehicles to more quickly access a hospital (the trip was decreased by 15 miles) was permitted although the traffic volumes and benefit cost analysis did not justify it.

The main purpose of an additional interchange in Weaverville would be to serve traffic heading south on Merrimon Avenue or west on Reems Creek Road and desiring to go south towards Asheville. As illustrated on the attached figure and the table below, the distance travelled would be longer when using the proposed interchange than when using the existing interchange. The difference in travel time however is lower for the proposed interchange than the existing interchange.

A small amount of traffic may also use the interchange instead of Main Street when heading north to the shopping areas on Weaver Boulevard. This movement is expected to be very small and not an encouraged use of an Interstate facility. Interstate facilities are designed to serve regional traffic not local traffic. This is explained more fully in "Additional Interchanges to the Interstate System", Federal Register, Volume 55, No. 204, October 22, 1990:

> " ... requires the States to demonstrate that an access point is needed for regional traffic needs and not only to solve local system needs or problems."

Based on the distance and travel time estimates, the

improvement caused by the addition of the proposed interchange is minimal.

Comparison of Distance and Travel Time
(Existing Interchange versus Proposed Interchange)

Path		Distance	Travel
From	To	(miles)	Time (sec)
Reems Crk Rd.	Existing Interchange	1.2 mi	185 sec
Reems Crk Rd.	Proposed Interchange	1.4 mi	145 sec
			40 sec
Merrimon Ave.	Existing Interchange	1.0 mi	165 sec
Merrimon Ave.	Proposed Interchange	1.2 mi	115 sec
			50 sec

Alternatives

The Recommended Weaverville Thoroughfare Plan includes the widening of Reems Creek Road and Merrimon Avenue. Future traffic estimates indicate that widening these roads will provide ample capacity well past the year 2020. Improvements to the New Stock Road interchange are also recommended.

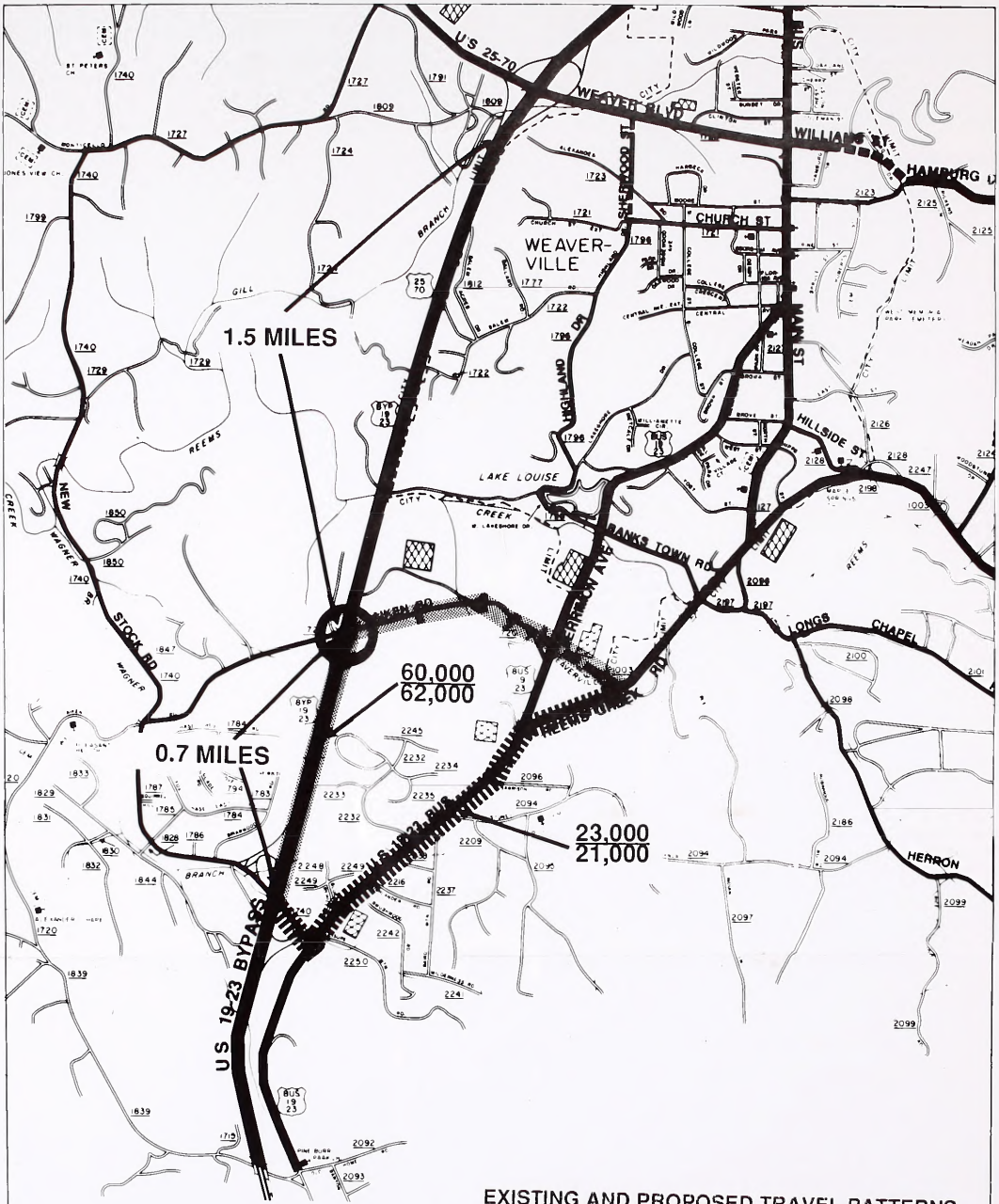
The Federal Register referenced previously states that it is necessary to:

> "... assure that all reasonable alternatives, including improvements to existing local roads and streets in lieu of new access, have been fully considered."

Item 1 in the Policy section restates that improvements to local roads are necessary before interchange access is considered. This requirement reinforces the desire for interstates to serve regional traffic. In 2020, a volume of 23,000 is predicted on Merrimon just north of New Stock Road. If the proposed interchange were constructed a maximum of 2,000 trips would be diverted off of this section of Merrimon. The recommendation to widen Merrimon would still be valid for an AADT of 21,000. Figure D-1 illustrates the estimated 2020 AADT on Merrimon with and without the proposed interchange. Thus, it is not feasible to consider the proposed interchange as an alternate to widening Merrimon Avenue.

Conclusion

The preliminary study conducted on this proposal indicates that the spacing guidelines, the purpose, and the consideration of alternatives, an additional interchange between New Stock Road and Weaver Boulevard is not warranted. In addition, these conclusions are so clearly supported by transportation planning principles, AASHTO guidelines, and federal policy that any additional study would not be a prudent use of limited funds.



EXISTING AND PROPOSED TRAVEL PATTERNS

LEGEND

PROPOSED AIKEN RD. INTERCHANGE

PROPOSED CONNECTOR

EXISTING TRAVEL PATTERN

PROPOSED TRAVEL PATTERN

00,000 2020 AADT WITHOUT INTERCHANGE

00,000 2020 AADT WITH INTERCHANGE

FIGURE D - 1

APPENDIX E

EMPLOYMENT AND HOUSING INVENTORY

The 1989 housing survey results are shown in Table E-1. Each dwelling unit in the traffic zones was classified according to resident income level: excellent (EXCL), above average (AAVG), average (AVG), below average (BAVG), and poor (POOR). The data was collected by field inspection by the Asheville Metropolitan Planning Organization (MPO).

TABLE E-1 DWELLING UNITS BY ZONE

ZONE	DWELLING UNITS					
	TOTAL NUMBER	CONDITION				
		EXCL	AAVG	AVG	BAVG	POOR
1	170	5	8	47	43	67
2	562	2	23	230	227	80
3	328	3	25	90	92	118
4	445	0	37	276	47	85
5	257	3	34	180	19	21
6	629	0	17	359	201	52
7	221	0	10	67	26	118
TOTAL	2612	13	154	1249	655	541

TABLE E-2 BUSINESSES BY ZONE

The results of the 1989 employment survey are shown in Tables E-2 and E-3. All of the businesses in the planning area were categorized according to their Standartd Identification Code (SIC), which is set by the federal government. Information on full and part-time employment, commercial trucks, and commercial cars was collected for each zone.

ZONE	BUSINESSES				
	TOTAL NUMBER	FULL EMPL	PART EMPL	COMM CARS	COMM TRUCKS
1	17	470	26	4	13
2	36	288	72	35	36
3	7	180	27	2	2
4	35	1304	98	18	10
5	1	3	3	1	1
6	50	310	245	48	23
7	9	21	7	4	9
TOTAL	155	2576	478	112	94

TABLE E-3 BUSINESS TYPE BY ZONE

ZONE	NUMBER OF BUSINESSES					
	OTHER INDUSTRY	TEXTILE	RETAIL AND WHOLESALE	HIGHWAY RETAIL	FINANCE AND ADMINISTRATION	SERVICE
1	3	1	3	1	0	2
2	4	1	5	2	0	9
3	2	0	1	1	1	1
4	3	2	4	2	2	5
5	0	0	0	0	0	1
6	2	0	5	2	4	7
7	4	0	1	0	1	2
TOTAL	18	4	19	8	8	27

* Data was not collected for the area north and west of Zones 1, 2, and 3 due to an expansion of the planning area after the field surveys in the summer of 1989. See Figure 2 for the location of this area.

APPENDIX F

RECOMMENDED DEFINITIONS AND DESIGN STANDARDS

Definitions

I. Streets and Roads:

A. Rural Roads

1. Principal Arterial - A rural link in a highway system serving travel, and having characteristics indicative of substantial statewide or interstate travel and existing solely to serve traffic. This network would consist of interstate routes, intrastate routes, and other routes designated as principal arterials.

2. Minor Arterial - A rural roadway joining cities and larger towns and providing intrastate and intercounty service at relatively high overall travel speeds with minimum interference to through movement.

3. Major Collector - A road which serves major intracounty travel corridors and traffic generators and provides access to the arterial system.

4. Minor Collector - A road which provides service to small local communities and traffic generators and provides access to the major collector system.

5. Local Road - A road which serves primarily to provide access to adjacent land, over relatively short distances.

B. Urban Streets

1. Major Thoroughfares - Major thoroughfares consist of interstate, intrastate, other freeway, expressway, or parkway roads, and major streets that provide for the expeditious movement of high volumes of traffic within and through urban areas.

2. Minor Thoroughfares - Minor thoroughfares perform the function of collecting traffic from local access streets and carrying it to the major thoroughfare system. Minor thoroughfares may be used to supplement the major thoroughfare system by facilitating minor through traffic movements and may also serve abutting property.

3. Local Street - A local street is any street not on a higher order urban system and serves primarily to provide direct access to abutting land.

C. Specific Type Rural or Urban Streets

1. Freeway - Divided multilane roadways designed to carry large volumes of traffic at high speeds. A freeway provides for continuous flow of vehicles with no direct access to abutting property and with access to selected crossroads only by way of interchanges. (Design speed 70 mph, Operating speed 55 mph)

2. Secondary Freeway - A divided multilane roadway designed to carry moderate volumes of traffic at moderate speeds. The facility provides for the continuous flow of traffic through full control of access and the provision of interchanges or grade separation with no access at cross roads, and no traffic signals. (Design speed 50-55 mph, Operating speed 40-45 mph)

3. Parkway - A divided multilane roadway designed for noncommercial traffic, with full or partial control of access. Grade separations are provided at major intersections and there are no traffic signals.

4. Expressway - A divided multilane roadway designed to carry heavy volumes of traffic with full or partial control of access. Interchanges are provided at major intersections. There may be access to service roads and local streets, but there will be no signalized intersections.

5. Secondary Expressway - A divided multilane roadway designed to carry moderate volumes of traffic at moderate speeds. This facility may have partial control of access with right turn in and right turn out access to abutting property, and interchanges at major intersections. Some minor intersections may have traffic signal control.

6. Urban Arterial - Multilane roadway with signalized intersections, and access to abutting property. May have grass or barrier type median, or middle left turn lane.

7. Residential Collector Street - A local street which serves as a connector street between local residential streets and the thoroughfare system. Residential collector streets typically collect traffic from 100 to 400 dwelling units.

8. Local Residential Street - Cul-de-sacs, loop streets less than 2,500 feet in length, or streets less than one mile in length that do not connect thoroughfares, or serve major traffic generators, and do not collect traffic from more than 100 dwelling units.

9. Cul-de-sac - A short street having only one end open to traffic and the other end being permanently terminated and a vehicular turn-around provided.

10. Frontage Road - A road that is parallel to a partial or full access controlled facility and provides access to adjacent land.

11. Alley - A strip of land, owned publicly or privately, set aside primarily for vehicular service access to the back side of properties otherwise abutting on a street.

II. Property

A. Building Setback Line - A line parallel to the street in front of which no structure shall be built.

B. Easement - A grant by the property owner for use by the public, a corporation, or person(s), of a strip of land for a specific purpose.

C. Lot - A portion of a subdivision, or any other parcel of land, which is intended as a unit for transfer of ownership or for development or both. The word "lot" includes the words "plot" and "parcel".

III. Subdivision

A. Subdivider - Any person, firm, corporation or official agent thereof, who subdivides or develops any land deemed to be a subdivision.

B. Subdivision - All divisions of a tract or parcel of land into two or more lots, building sites, or other divisions for the purpose, immediate or future, of sale or building development and all divisions of land involving the dedication of a new street or change in existing streets; provided, however, that the following shall not be included within this definition nor subject to these regulations: (1) the combination of portions of previously platted lots where the total number of lots is not increased and the resultant lots are equal to or exceed the standards contained herein; (2) the division of land into parcels greater than ten acres where no street right-of-way dedication is involved; (3) widening or opening of streets; (4) the division of a tract in single ownership whose entire area is no greater than two acres into not more than three lots, where no street right of way dedication is involved and where the resultant lots are equal to or exceed the standards contained herein.

C. Dedication - A gift, by the owner, of his property to another party without any consideration being given for the transfer. The dedication is made by written instrument and is completed with an acceptance.

D. Reservation - Reservation of land does not involve any transfer of property rights. It constitutes an obligation to keep property free from development for a stated period of time.

DESIGN STANDARDS

I. Streets and Roads

The design of all roads shall be in accordance with the accepted policies of the North Carolina Department of Transportation, Division of Highways, as taken or modified from the American Association of State Highway Officials' (AASHTO) manuals.

The provision of street rights-of-way shall conform and meet the recommendations of the Thoroughfare Plan, as adopted by the Town.

The proposed street layout shall be coordinated with the existing street system of the surrounding area. Normally the proposed streets should be the extension of existing streets if possible.

A. Right-of-way Widths - Right-of-way (ROW) widths shall not be less than the following and shall apply except in those cases where ROW requirements have been specifically set out in the Thoroughfare Plan.

	Minimum ROW
1. Rural	
a. Principal Arterial	
Freeways	350 ft.
Other	200 ft.
b. Minor Arterial	100 ft.
c. Major Collector	100 ft.
d. Minor Collector	80 ft.
e. Local Road	60 ft.[1]
2. Urban	
a. Major Thoroughfare other than Freeway and Expressway	90 ft.
b. Minor Thoroughfare	70 ft.
c. Local Street	60 ft.[1]
d. Cul-de-sac	Variable[2]

---

[1] The desirable minimum right-of-way (ROW) is 60 ft. If curb and gutter is provided, 50 feet of ROW is adequate on local residential streets.

[2] The ROW dimension will depend on radius used for vehicular turn-around. Distance from edge of pavement of turn-around to ROW should not be less than distance from edge of pavement to ROW on street approaching turn-around.

The subdivider will only be required to dedicate a maximum of 100 feet of right-of-way. In cases where over 100 feet of right-of-way is desired, the subdivider will be required only to reserve the amount in excess of 100 feet. In all cases in which right-of-way is sought for a fully controlled access facility, the subdivider will only be required to make a reservation. It is strongly recommended that subdivisions provide access to properties from internal streets, and that direct property access to major thoroughfares, principal and minor arterials, and major collectors be avoided. Direct property access to minor thoroughfares is also undesirable.

A partial width right-of-way, not less than sixty feet in width may be dedicated when adjoining undeveloped property that is owned or controlled by the subdivider; provided that the width of a partial dedication be such as to permit the installation of such facilities as may be necessary to serve abutting lots. When the said adjoining property is subdivided, the remainder of the full required right-of-way shall be dedicated.

B. Street Widths - Widths for street and road classifications other than local streets shall be as recommended by the Thoroughfare Plan. Width of local roads and streets shall be as follows:

1. Local Residential
   Curb and Gutter section: 26 feet, face to face of curb
   Shoulder section: 20 feet to edge of pavement, 4 foot shoulders

2. Residential Collector
   Curb and Gutter section: 34 feet, face to face of curb
   Shoulder section: 20 feet to edge of pavement, 6 foot shoulders

C. Geometric Characteristics - The standards outlined below shall apply to all subdivision streets proposed for addition to the State Highway System or Municipal Street System. In cases where a subdivision is sought adjacent to a proposed thoroughfare corridor, the requirements of dedication and reservation discussed under Right-of-Way shall apply.

1. Design Speed - The design speed for a roadway should be a minimum of 5 mph greater than the posted speed limit. The design speeds for subdivision type streets are shown on the following page.

DESIGN SPEEDS			
Facility Type	Design Speed		
	Desirable	Minimum	
		Level	Rolling
Rural			
Minor Collector Roads	60	50	40
Local roads including Residential Collectors and Local Residential	50	50*	40*
Urban			
Major Thoroughfares other than Freeways, Expressways, or Parkways	60	50	50
Minor Thoroughfares	60	50	40
Local Streets	40	40**	30**

* Based on projected annual average daily traffic of 400-750 vehicles. In cases where road will serve a limited area and small number of dwelling units, minimum design speeds can be reduced further.
** Based on projected annual average daily traffic of 50-250 vehicles.

2. Maximum and Minimum Grades

   a. The maximum grades in percent shall be:

   b. Minimum grade should not be less than 0.5%.

   c. Grades for 100 feet each way from intersections (measured from edge of pavement) should not exceed 5%.

MAXIMUM VERTICAL GRADE		
Design Speed	Terrain	
	Level	Rolling
60	4	5
50	5	6
40	6	7
30		9

d. For streets and roads with projected annual average daily traffic less than 250, short grades less than 500 feet long, may be 50% greater than the value in the above table.

3. Minimum Sight Distance - In the interest of public safety, no less than the minimum applicable sight distance shall be provided. Vertical curves that connect each change in grade shall be provided and calculated using the following parameters. Sight distance provided for stopped vehicles at intersections should be in accordance with "A Policy on Geometric Design of Highways and Streets, 1984."

SIGHT DISTANCE				
Design Speed	30	40	50	60
Stopping Sight Distance				
Minimum (ft.)	200	275	400	525
Desirable Minimum (ft.)	200	325	475	650
Minimum K* Value for:				
Crest Curve	30	80	160	310
Sag Curve	40	70	110	160
* K is a coefficient by which the algebraic difference in grade may be multiplied to determine the length in feet of the vertical curve which will provide the desired sight distance.				
General practice calls for vertical curves to be multiples of 50 feet. Calculated lengths shall be rounded up in each case.				

4. The following "Superelevation Table" shows the maximum degree of curve and related maximum superelevation for design speeds. The maximum rate of roadway superelevation (e) for rural roads with no curb and gutter is 0.08. The maximum rate of superelevation for urban streets with curb and gutter is 0.06, with 0.04 being desirable.

SUPERELEVATION TABLE			
Design Speed	Maximum e*	Minimum Radius ft.	Max. Deg. of Curve
30	0.04	302	19 00′
40	0.04	573	10 00′
50	0.04	955	6 00′
60	0.04	1,528	3 45′
30	0.06	273	21 00′
40	0.06	509	11 15′
50	0.06	849	6 45
60	0.06	1,380	4 15′
30	0.08	252	22 45′
40	0.08	468	12 15′
50	0.08	764	7 30′
60	0.08	1,206	4 45′
e* = rate of roadway superelevation, foot per foot			

D. Intersections

1. Streets shall be laid out so as to intersect as nearly as possible at right angles, and no street should intersect any other street at an angle less than sixty-five (65) degrees. No street should intersect a railroad at grade at an angle less than sixty-five (65) degrees.

2. Property lines at intersections should be set so that the distance from the edge of pavement, of the street turnout, to the property line will be at least as great as the distance from the edge of pavement to the property line along the intersecting streets. This property line can be established as a radius or as a sight triangle. Greater offsets from the edge of pavement to the property lines will be required, if necessary, to provide sight distance for the stopped vehicle on the side street.

3. Offset intersections are to be avoided. Intersections which cannot be aligned should be separated by a minimum length of 200 feet between survey centerlines.

E. Cul-de-sacs

Cul-de-sacs shall not be more than five hundred (500) feet in length. The distance from the edge of pavement on the vehicular turn-around to the right-of-way line should not be less than the distance from the edge of pavement to right-of-

way line on the street approaching the turn-around. Cul-de-sacs should not be used to avoid connection with an existing street or to avoid the extension of an important street.

F. Alleys

1. Alleys shall be required to serve lots used for commercial and industrial purposes except that this requirement may be waived where other definite and assured provision is made for service access. Alleys shall not be provided in residential subdivisions unless necessitated by unusual circumstances.

2. The width of an alley shall be at least twenty (20) feet.

3. Dead-end alleys shall be avoided where possible, but if unavoidable, shall be provided with adequate turn-around facilities at the dead end as may be required by the Planning Board.

G. Permits For Connection To State Roads

An approved permit is required for connection to any existing state system road. This permit is required prior to any construction on the street or road. The application is available at the office of the District Engineer of the Division of Highways.

H. Offsets To Utility Poles

Poles for overhead utilities should be located clear of roadway shoulders, preferably a minimum of at least 30 feet from the edge of pavement. On streets with curb and gutter, utility poles shall be set back a minimum distance of 6 feet from the face of curb.

I. Wheelchair Ramps

All street curbs being constructed or reconstructed for maintenance purposes, traffic operations, repairs, correction of utilities, or altered for any reason, shall provide wheelchair ramps for the physically handicapped at intersections where both curb and gutter and sidewalks are provided and at other major points of pedestrian flow.

J. Horizontal Width on Bridge Deck

1. The clear roadway widths for new and reconstructed bridges serving 2 lane, 2 way traffic should be as follows:

   a. Shoulder section approach

      i. Under 800 ADT design year

         Minimum 28 feet width face to face of parapets of rails or pavement width plus 10 feet, whichever is greater.

      ii. 800 - 2000 ADT design year

         Minimum 34 feet width face to face of parapets of rails or pavement width plus 12 feet, whichever is greater.

      iii. Over 2000 ADT design year

         Minimum width of 40 feet, desirable width of 44 feet width face to face of parapets of rails.

   b. Curb and gutter approach

      i. Under 800 ADT design year

         Minimum 24 feet face to face of curbs.

      ii. Over 800 ADT design year

         Width of approach pavement measured face to face of curbs.

         Where curb and gutter sections are used on roadway approaches, curbs on bridges shall match the curbs on approaches in height, in width of face to face of curbs, and in crown drop. The distance from face of curb to face of parapet of rail shall be 1'6" minimum, or greater if sidewalks are required.

2. The clear roadway widths for new and reconstructed bridges having 4 or more lanes serving undivided two-way traffic should be as follows:

   a. Shoulder section approach - Width of approach pavement plus width of usable shoulders on the approach left and right. (Shoulder width 8' minimum, 10' desirable.)

   b. Curb and gutter approach - Width of approach pavement measured face to face of curbs.